DOCUMENT RESUME

ED 128 871 95 EA 008 426

AUTHOR Piele, Philip K.
TITLE Review and Analysis of the Role, Activities, and Training of Educational Linking Agents. Final Report.
INSTITUTION Oregon Univ., Eugene. ERIC Clearinghouse on Educational Management.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C. Dissemination and Resources Group. School Practice and Service Div.
PUB DATE 5 Nov 75
CONTRACT 400-75-0013
NOTE 111p.

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS *Adoption (Ideas); Bibliographies; *Change Agents; *Educational Change; Educational Innovation; Educational Research; Information Dissemination; Interpersonal Relationship; Literature Reviews; Models; *Program Descriptions; *Research Utilization; *Training
IDENTIFIERS *Linking Agents

ABSTRACT

A linking agent is a person or team operating at the interface between resources and the school systems for the purpose of facilitating change by producing interaction between the two, thereby reducing the difference between potential and actual educational practice. This discussion of agent roles and training proceeds from a discussion of change and various change models to the various agent roles these models imply. With these roles in mind, ways to devise effective training programs are discussed, including specific programs for each role. The report concludes with a brief discussion of what is known about the practice of each role and with an attempt to suggest areas for further research. A bibliography is included and selected training resources are listed. (Author/IRT)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED128871

REVIEW AND ANALYSIS OF THE ROLE, ACTIVITIES, AND TRAINING OF EDUCATIONAL LINKING AGENTS

Final Report
November 5, 1975

Philip K. Piele
Principal Investigator

This report was prepared for the School Practice and Service Division of the National Institute of Education as a modification to Contract No. 400-75-0013. The opinions expressed in this report do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the National Institute of Education should be inferred.

EA 008 426

ERIC Clearinghouse on Educational Management
University of Oregon
Eugene, Oregon 97403

CONTENTS

	Preface	ii
1.	Introduction	1
2.	Review of Literature on Educational Innovation and Models of the Change Process	5
	Significant Variables in the Innovation Process	6
	Models of the Change Process	11
3.	Analysis of Change Models and Implications for Linking Agent Roles	18
4.	Implications of Linking Agent Roles for Design of a Training Program	24
5.	Criteria for Development of a Training Program	31
	Planning the Program	32
	Implementing the Program	35
	Evaluating the Training	37
6.	Examples of Linking Agent Training Programs	43
	Resource Linker	44
	Process Helper	48
	Solution Giver	51
7.	Institutional Support for Linking Agents	53
8.	Recent Research Evidence on Linking Agent Roles and Training	60
9.	Subjects for Further Research and Consideration	69
10.	Summary	74
	Appendix A (Names and Addresses of Reviewers)	76
	Appendix B (Selected Training Resources)	78
	Appendix C (Basic Reading List)	86
	Bibliography	88

PREFACE

In the course of preparing this report, it soon became apparent that the current state of the knowledge did not justify confining our discussion to a single specific type of linking agent role. Writers have proposed various models of the change process and in some cases have undertaken research projects to demonstrate that the particular linking agent role their models envisioned would lead to more effective dissemination than would take place in the absence of such a linker. But few descriptive and comparative studies appear to have been conducted to determine which of these roles is most effective, and fewer still have reached meaningful conclusions.

This work was performed to meet strict deadlines established by the National Institute of Education for development of its policy and programs on dissemination. Because of those deadlines, we had to limit our search of the literature primarily to materials published since 1970 that could be retrieved through a computer search of the ERIC files.

The first draft of the report, begun the first week of July and completed August 8, 1975, was submitted to a number of reviewers across the nation to solicit comments about the substance of the report and references to significant pieces of literature our search failed to retrieve. (See Appendix A for a list of the names and addresses of the reviewers.) Although the reviewers brought to our attention a few older seminal works and some significant post-1970 materials that our search overlooked, the report essentially focuses on easily accessible literature published during the last five years.

Several of the reviewers were invited to attend a meeting at the University of Oregon to evaluate the second draft, which was completed on October 2. Those who attended the meeting, held October 15-17, are as follows: David L. Clark, David P. Crandall, Terrence E. Deal, Ronald G. Havelock, Charles C. Jung, Harry W. Osgood, and Lewis A. Rhodes. We would like to acknowledge the substantial contributions made by all the reviewers, especially those who attended the meeting.

Finally, contributions by the following members of the Clearinghouse staff are also acknowledged: David Coursen, for his excellent initial review of the literature; Stuart Smith, for his skillful editing; Greg May, Sandy Anders, and Jennilu Whitwell for their meticulous proofing; and Jennilu Whitwell for her complete and comprehensible notes of the October meeting.

1.

INTRODUCTION

The federal government's investment in educational research during the past decade has produced a substantial accumulation of information about educational programs and their administration, as well as available resources to facilitate their operation. One of the more discouraging developments in contemporary education is the apparent failure of the majority of schools to utilize the fruits of much of this research effort by applying the knowledge and utilizing the products that have been developed from it. This report assumes initially that research has produced such knowledge and products and that the educational system could be improved if some way were found to increase the extent of their use.

In addition, ideas and practices have been developed outside the research establishment, and these, too, are part of what we call the resource system. Since we assume that this resource system contains much that could be of value to the practice of American education, the entire educational system could be improved if some way were found to link the schools more closely to the resource system, to narrow the

gap between new ideas or products and actual practice.

In present circumstances, where the resource system is not being fully utilized, education is being doubly penalized: not only are the best practices not being employed (indicating that the system is not educating as well as it potentially could), but money spent on research is not immediately consistent with value received, even when the research itself is productive. Surely this is an undesirable situation at any time, but especially now, when education is in a chronic financial crisis. Clearly, this makes it even more imperative that we find ways to facilitate the utilization of research findings and, in fact, of the entire resource system.

When we speak of the resource system, we include both what is known or believed about education -- how it works, how it can be improved (the knowledge base) -- and the specific products that have been developed from that knowledge base. Thus, if we confine our discussion temporarily to the research process, we see that it actually encompasses two processes, research, expanding the knowledge, and development, applying that knowledge to developing specific products. The resource system encompasses, but is by no means restricted to, this research and development (R&D) process.

Our fundamental concern is with making what is in this resource system available to the schools. There is considerable evidence in the change-diffusion literature that suggests that innovations (new ideas or products) spread most effectively when

their diffusion is facilitated by a person or team functioning as a linking agent. These agents operate at the interface between new ideas and products and current educational practice, dealing regularly with both resource and user systems for the purpose of helping the two interact constructively.

Since we assume that the new ideas and products are not being widely used and that the linking agent intends to help change this situation, that agent is, at least potentially, a change agent. But our definition must be flexible enough to accommodate all types of linkage roles, from directly and actively becoming involved with attempting to make changes to merely providing requesters with information from the resource system that they may or may not utilize to bring about change. With the recognition that change may thus be the immediate or ultimate potential outcome of the agent's activity, we finally define a linking agent as a person or team operating at the interface between the resource and school systems for the purpose of facilitating change by producing interaction between the two, thereby reducing the difference between potential and actual educational practice.

In our discussion of the roles of various types of agents, we deliberately restrict our conception of those roles to include only full-time agents. We recognize that, for example, teachers and administrators trained in the use of a given innovation can perform invaluable linkage functions, and

the direction of our discussion is in no way a judgment about the merits of temporary and part-time linking agents. But we do suggest that only by studying the overall dimensions of each role and the entire range of activities that it might encompass, can we define a comprehensive set of functions for such agents. Once all the functions included in each role have been discussed, the less inclusive range of functions of temporary and part-time agents can be inferred from our comprehensive list.

In our discussion of agent roles and training, we will proceed from a discussion of change and various change models to the various agent roles these models imply. With these roles in mind, we will then discuss ways to devise effective training programs, including specific programs for each role. When we have completed this, we will conclude our report with a brief discussion of what is known about the practice of each role, and, finally, with an attempted introduction to what is not known, in which we will suggest areas for further research.

2.

REVIEW OF LITERATURE ON EDUCATIONAL INNOVATION AND MODELS OF THE CHANGE PROCESS

According to conventional wisdom, the truism that "few things in this world are as certain as change" does not apply to the educational system. For while consumer products, technology, and even values in the United States customarily undergo rapid changes, education seems to continue much as it always has. In fact, however, there is substantial evidence that internally developed change frequently does occur throughout the educational system. But if we discuss externally developed changes, the conventional wisdom may still apply. In any case, many observers lament the slowness of educational change, estimating the delay between the development of new practices and their institutionalization at anywhere from a generation to half a century or even a century.

However slowly change ostensibly takes place in education, a brief review of studies of the significant variables in the innovation process provides a context for understanding the role of the linking agent.

Significant Variables in the Innovation Process

One of the most useful documents about educational change is Huberman's (1973) general survey of recent work on the subject. In his introduction, he emphasizes four things that are crucial to analyzing innovations (which he defines as changes that have been planned). The first consideration is the different reactions a given innovation may elicit, reactions that can encourage or impede the adoption of that innovation. Another factor is the circumstances that are likely to be instrumental in determining whether an innovation is accepted or resisted (process variables):

> Some of the principal variables are the complexity of the innovation, its cost, communicability, divisibility into parts, the nature of the relationship between the source of the change and the persons being helped to change, and the congruence between the innovation and the environment. (p. 2)

A third factor to consider is the durability of the change. While most changes come from outside a system, those that last are the ones internalized by the users, giving them a personal desire to persist with the new practice.

But the critical factor, as Huberman sees it, is "the adopter's concept of the changes he personally will be required to make." He lists three types of changes: in hardware, software, and interpersonal relations. In education the last is the most important: "The fact that educational operations are carried out by persons as instruments of change rather

than through the use of physical technology . . . makes it necessary to change basic attitudes when we change behaviors or skills" (p. 9).

Huberman also provides a more extensive list of the kinds of variables that are related to change:

Process variables (see above)

Situational variables

structure of the instructional system
leadership and sponsorship
school environment
group norms
personal characteristics of adopters, especially compatibility with the innovation
rewards and punishments

Environmental variables

innovations-system congruence
readiness of the system for the innovation

Further, change can be typed according to extent and kind. Huberman notes that Havelock divides extent into:

change in size and scope of operations
change involving the acquisition of new skills
change in goals
change in values or orientation

In addition, Huberman continues, Havelock lists the following types of changes:

substitution
alteration
addition without changing old elements or patterns
restructuring
elimination of old behavior
reinforcement of old behavior
value orientation requiring attitudinal or cultural changes

Writers may discuss different aspects of the change process. For example, change models may focus on the change effort itself or on the different actors in the process. Among the variables that a change analysis might consider are the internal and external participants, the formal and informal structures involved, and the interlocking positions and interacting roles that will be involved in the process. Many writers follow Rogers (1962) in listing five stages in the change process: awareness, continuing interest, evaluation, trial, and adoption.*

Many forces can inhibit change. As Huberman observes, systems seem to have an inherent resistance to change. He notes that Miles cites three principal reasons for slow adoption of innovations: the absence of valid scientific research findings, a lack of change agents to promote new ideas, and a lack of incentive for school personnel to adopt innovations. In addition, Huberman points out that Havelock has divided change resistance into three types: input factors, preventing change from getting into the system; throughput factors, preventing change from spreading through the system; and output factors, preventing change from spreading from one system to other systems.

Huberman also lists Watson's eight forces of resistance

---

*As we use the terms, to adopt ("to take and use") implies to implement ("to carry into effect"). The two can be distinguished, as the study by Berman and McLaughlin perceptively points out, suggesting that postadoption stages include implementation and incorporation, but it is surely a superficial adoption that does not lead to implementation.

to change: homeostasis -- the natural desire for balance; habit; primacy -- the desire to continue doing things as you first did them successfully; selective perception and retention; dependence -- for example, on the views of peers or superiors; superego; self-distrust -- for example, a hesitancy to correct malpractices; and insecurity and regression.

Simonds and St. Lawrence (1972) cite several reasons for the failure of change programs: change may be made without prior analysis of its effects on the whole system; changes may be externally imposed without regard for local needs; change may be made for its own sake, without regard for fundamental reform; or a system may lack any organism with the specific responsibility for the design and maintenance of change.

Orlosky and Smith (1971) made a historical study of change in education and reached several conclusions. They found that change ideas with support from both outside and inside the school had the greatest chance of success. In addition, the changes in administration and organization that could be made without dismantling the entire structure were most likely to succeed. Instructional methods are harder to change than curriculum or administration, and such changes generally succeed only if they originate within the profession. Moreover, change that involves discarding one practice and replacing it with another, particularly if it requires retraining, is unlikely to succeed unless some incentives to change are offered. The report continues

with the claim that the lack of a diffusion system will lead to aborted change and that changes will be resisted if they require relinquishment of power or cast doubt on roles. The lower the weight of the cognitive burden of the change the more likely is its acceptance. Finally, they see the school as a quasi-closed system that can be influenced by external forces but is largely controlled by its own inner logic.

In a document credited to Rogers and others (1973), Foshay offers a number of useful comments about the implementation of the change process:

1) If an innovation is not comprehensible to the leadership of schools, it will be trivialized or aborted.

2) To be successful, an innovation must appear both to come from the top down (thus legitimizing it) and from the bottom up (thus being honest). .

3) Credit for the success of an innovation goes to the developer, blame for its failure to the teacher; thus a teacher will not find it rewarding to attempt to adopt someone else's innovation.

4) As a result, innovations must be locally verifiable and locally modifiable at the classroom level.

From the generalizations Foshay draws three conclusions about change diffusion: that a strategy for change introduction must be consistent with a local reward system, that innovations should be introduced to administrators as well as teachers, and that an innovation adoption strategy must involve meeting the role needs of administrators and teachers. In support of this, Robinson and Hall (1973) offer their empirical discovery

that, despite what they had expected, change need not originate at the top, though it is crucial that it not be opposed from the top.

Models of the Change Process

Since there are so many variables in the change process, it is not surprising that several different change strategies and models are suggested.

Gallesich (1973) cites several change strategies. These include: a crisis model that sees the energy for change in a system at its crisis points; a systems model, suggesting the need to study organizational processes to induce change; a model that focuses on obtaining the support of influential individuals; a congruency model, in which the change agent identifies and works with discrepancies, for example, between role perceptions and realities; and a Lewinian force-field analysis, in which the agent identifies and manipulates restraining and driving forces within a system.

Chin and Benne identify three basic strategies for change:

-the empirical-rational approach, based on an appeal to the rational self-interest of the user

-the normative reeducative approach, in which it is necessary to articulate the need for change until it is felt pervasively and the adopter searches for solutions

-the power coercive approach, in which change is ordered

This discussion of the change literature is by no means definitive, but does include a representative sample of the work that has been done. To conclude our discussion, we list some of the most

common generalizations about change, both to clarify the need for the linking agent role and to help us begin to determine just what shape that role might take:

-Change must be understood and accepted at the top.

-Rewards of some kind must be offered for change adoption.

-Changes and adoption strategies must not appear to conflict with the values and interests of those in the system.

-Changes and adoption strategies should be planned with a view to their effects on the entire system.

-Some agent, usually external, is needed to bring about innovation diffusion and adoption.

-The more simple and less disruptive a change appears, the easier is its adoption.

-If change or the change impulse seems to originate within the system, particularly within the individual user, the chances of its adoption should be increased.

-If change is to be lasting, it must be internalized and institutionalized.

-Adaptation is often a crucial part of successful change adoption.

Probably the master synthesizer of existing work on change agentry is Havelock. If the value of a work is measured by its influence on others working in that field, then surely Havelock's work, which has come to dominate the whole conceptual universe within which we think about linking agents, is invaluable. For example, Lindsay notes that the state pilot dissemination programs were specifically designed to establish a linkage process that did not violate the principles of the

Havelock model. In addition, Havelock's descriptions of the various models of the change process have come to be almost universally accepted, even by those with whom he seems to be in disagreement (cf. Hall). We assume that the reason for this general acceptance is that Havelock's work has proved useful, and, following that assumption, we also borrow heavily from it. The following propositions about the various models of the change process were all originally formulated by Havelock and offered to a conference of experts, who assented to virtually all of them with varying degrees of unanimity.

A. Change as a Problem-Solving Process

Diagnosis of system needs must always be an integral part of the process.
The outside change agent should be nondirective.
Internal resources (those already existing and easily accessible within the client system itself) should be fully utilized.
Self-initiated and self-applied innovations will have the strongest user commitment and the best chance of long-term survival.
Change agents are primarily process consultants and trainers.

Obviously, the focus of the problem-solver model is on the user system. It is also noteworthy that the second and fifth of the above propositions were the most controversial of the conference.

B. Change as a Research, Development, and Diffusion Process

Successful innovation requires formal planning (both short-term and long-term).
Innovation is more effective if labor is rationally divided according to functions (diagnosis, information retrieval, research, development, and application).

Effective utilization of complex innovations must be preceded by coherently co-ordinated research, development, and evaluation.

Innovations are more effective when innovators begin by stating objectives or desired outcomes in behavioral terms.

Innovation is more effective when evaluation is employed at each step of development, diffusion, and installation.

Innovation is more effective when it includes analysis of cost-to-benefits ratios of specific alternatives.

Just as the first model sees change as centered on the user system, with relatively little emphasis on research, so this model focuses on an active research and development establishment designing innovations for the consumption of a passive client population. The most extreme manifestation of the RD&D approach is in attempts to design "user-proof" innovations, where every problem of adaptation or translation has been anticipated and solved by the research system. In addition, the criterion of cost-effectiveness suggests the desirability of developing innovations that will work almost everywhere (that is, are widely transferable) because of their low costs per unit.

C. Change as a Process of Social Interaction

Effective dissemination and utilization can be facilitated by informal opinion leaders.

Adoption of new ideas and practices is strongly influenced by the perceived norms of the user's professional reference group.

Informal, person to person contact is important in effective dissemination, especially when the user is at the trial stage.

Individual adoption behavior follows a sequence which includes "initial awareness," interest, evaluation, and trial.

Users with close proximity to resources are more likely to use them.
Users usually respond only after repeated inputs from diverse sources; key concepts in diffusion are redundancy, diversity, synchronicity.

The key to this approach is to spread the innovation through the natural communications media that exist within the educational system.

D. Change as a Linkage Process (this is Havelock's own approach, which attempts to remedy the deficiencies in the other models; it starts with the problem-solver model)

To be truly effective, resource persons must be able to simulate the user's problem-solving process.
To get help from resource persons or systems, the user must be able to simulate resource system processes--for example, to appreciate research knowledge, he must understand how it is generated and validated.
Effective utilization requires reciprocal feedback between user and research systems.
Resource systems need to develop reciprocal and collaborative relationships, not only with a variety of potential users but also with a large diverse group of other resource systems.
Users need to develop reciprocal and collaborative relations with a variety of resource systems (cosmopoliteness).
A willingness to listen to new ideas (openess) is an important prerequisite to change. This applies to resource persons and to users.

The key concepts here are "reciprocal" and "collaborative."

Another model of the change process is proposed by Hall (1973 and 1974) and his colleagues, a model they refer to as the Concerns Based Adoption Model (CBAM). Like Havelock's linkage model, CBAM assumes the inadequacy of the three standard change models. In addition, the primary stated emphasis here too is on collaboration between the adopter and an

external change agent or resource agency. In contrast to the linkage model, however, CBAM assumes that a specific innovation will be adopted. The key, in this view, to innovation adoption is in the relationship between the level of use of the innovation and the client's stages of concern about that innovation. The basic hypothesis is that the key to facilitating adoption of a change is guiding the client through the levels of concern about the innovation, since those levels determine extent of use. This view further suggests that a low level of innovation use will not be related to intrinsic properties of the innovation itself but rather to the user's own cognitive situation. By recognizing this, the CBAM agent can address the real causes of resistance to change adoption, focusing on modifying attitudes about the innovation rather than on the innovation itself.

Returning once again to Havelock, we cite his list of further propositions about the change process:

E. Additional Propositions about the Change Process

Effective knowledge utilization is a self-fulfilling prophecy (the user expects the process to pay off and so it does).
A willingness to take risks is an important requirement for successful innovation.
A willingness to adapt innovations to specific situations is a prerequisite to effective utilization (this was generally accepted by the conference, though it is not entirely consistent with the RD&D idea of "user-proof" innovations).
Those with the most resources and capabilities are the most likely to get more of the same.

Anticipated profit (reward) is a major incentive for diffusers and users of innovations.

Rewarding encounters with new knowledge lead to expectations that future encounters will also be rewarding.

New ideas and innovations that clearly contradict preexisting values won't get far in the user system, whereas those that appeal to cherished values will.

Additional models of the change process, other than those presented here, have been proposed by various writers both in this country and abroad.* While we acknowledge that a careful analysis of other models may offer valuable insight into the roles and functions of linking agents, because of our deadlines we had to limit our discussion to those that are widely described in the literature available to us. An analysis of other models and their implications for the training of linking agents may well be the subject of another paper.

---

*For example, the pathological model, the sociometric model, the social structure model, the pattern variables model, the group experience model, the social reality model, the crisis intervention model, the evolutionary model, and the intuitive model.

3.

ANALYSIS OF CHANGE MODELS AND IMPLICATIONS FOR LINKING AGENT ROLES

Before we can move to a discussion of agent training, we need to analyze the change models and their implications for agent roles. Given the fact that there are several change models and several additional propositions about the change process not derived from any of these models, we assume that no specific model is complete. Instead, each assumes a slightly different perspective on the change process, and, in fact, that process itself may be slightly different under different conditions. For "the change process" is neither monolithic nor homogeneous, may encompass a wide range of situations, and is certainly far too rich and diverse to be encompassed by a single perspective or neatly summarized with a few propositions. And we must further note that a model that describes <u>one</u> perspective on the change process as it develops under <u>some</u> circumstances is scarcely adequate as a source from which to infer a training program for <u>all</u> possible agents performing <u>all</u> possible linking activities.

What we have, instead, are five different models of the change process, each focusing on different aspects of that process, each more applicable under certain conditions than under others. The problem-solving model, for example, attends to most of our general propositions about change; user initiation may even provide a kind of reward for adoption. The model, however, makes virtually no provision for innovations developed outside the user system.

The RD&D model has the reverse emphasis, since it focuses on the external development of innovations and emphasizes advance diffusion planning, without attending either to the need for an active (or perceived) user involvment in the innovation process or to the importance of the uniqueness of each client system. This further means that the use of the innovation must have its own rewards for the user. The social interaction model focuses intensively on the diffusion process as seen from within the client system, with less interest in how innovations are generated or how they are actually implemented.

The other two models, linkage and CBAM, have been developed out of a sense of the inadequacies of each of the first three models, but they, too, are incomplete, and in ways that are, perhaps, complementary. The linkage model assumes a reciprocal collaboration between the resource and user systems. We suggest

that such collaboration requires mutual respect for the experience and local knowledge of the user system and the theory and general knowledge of the resource system. Collaboration in the linkage model needs both forms of expertise. The interplay, or contact, between the two adapts the innovation to the specific situation. Low user status may result in the adoption of unneeded innovations, whereas low resource system status may result in the loss of the innovation's basic integrity.

With CBAM, the reverse is true. That model assumes the value of an innovation in its introduced form and sees resistance as a manifestation of a need for further client development and progress through the levels of concern about the innovation. Obviously, neither is always correct; in some cases the difficulty with adoption is primarily a problem of innovation suitability (as linkage assumes) while at others it is simply a result of the client not yet having developed a capacity for intensive use of a perfectly appropriate innovation (as CBAM assumes).

If we extend this comparison, we find that, just as the linkage model proceeds initially from the problem-solving model, so CBAM actually suggests one way of refining the RD&D model. CBAM is primarily related to RD&D in its assumption that a specific, externally developed innovation is to be adopted. By focusing on the user, particularly on levels of user concern, it broadens the RD&D approach, refining the concept of diffusion

planning, and, most important, attending in a unique fashion to the need for a system of rewards for adoption. The rewards are in the form of relieved concerns rather than more tangible objects, but this may well be the most meaningful type of reward available. In addition, with CBAM and other RD&D strategies, "adoption" refers to the implementation of a specific innovation. As a result, they could be extraordinarily manipulative attempts to impose innovations on passive client systems. To avoid this, most contemporary RD&D approaches assume, with CBAM, that the initial decision for adoption, preceded by diagnosis and felt need, is the concern of the school system itself.

Thus we have one underlying distinction between RD&D type strategies and problem-solving type strategies. The latter are primarily concerned with diagnosis and felt needs, with the early stages of the innovation process, and with the process in general. These models are process general, oriented primarily to the process of innovation adoption, or problem solution. RD&D models are, by contrast, innovation-specific, geared more toward the adoption of specific innovations and assuming that most problem-solving work has been done, that many of the problems of adaptation have already been anticipated and solved.

The general process models assume a need for constant adaptation of innovations to the unique properties of each user

environment, with the result that each innovation is greatly influenced by the user system during the adoption-adaptation process. Innovation-specific strategies tend to be much less concerned with adaptation. Thus it is clear that the locus of problem-solving expertise is found in different places in the different models (aside from social interaction, which tends to play down the importance of problem-solving). With RD&D, more problem-solving is done outside the user system, with the problem-solving model it is done primarily within the user system, and with linkage it is done most effectively in an interaction between the two systems.

The different loci of problem-solving expertise implies further that there will be fundamentally different modes of interaction between agent and client, ranging from primarily directive (where the goal is the adoption of a specific innovation) to collaborative (where adaptation and client development of innovation process skills are the crucial goals) to nondirective (where problem-solving as such is primarily in the realm of the user system).

From this set of distinctions, we infer three principal types of linking agent roles, which, borrowing our terminology from Havelock, we call those of solution giver, process

helper, and resource linker.* We further note that the differences among these roles, like the differences among the change models, are too substantive to be simply the results of emphasizing different aspects of the change process. In fact, they describe several different change processes that cover a whole range of possibilities, from user-initiated problem solving, through adaptation of externally developed innovations, to the adoption of finished RD&D products. Only with this in mind can we begin to appreciate the richness and diversity of the phenomena that phrases like "the change process" or "innovation adoption" attempt to encompass. As we turn to the training programs for linking agents, we must always be mindful both of this conceptual diversity and of the equally complex and diverse user system.

---

*Interestingly, although Havelock uses these terms and synthesized the linkage model, it is the role of process helper, not that of the resource linker, that is most directly related to his linkage model.

4.

IMPLICATIONS OF LINKING AGENT ROLES FOR DESIGN OF A TRAINING PROGRAM

If we examine these three agent roles together we can begin to understand something of the dilemma in designing training programs. Of course, in the best of all possible worlds every linking agent would have the skills and expertise to perform effectively in every role. Since this is not always possible, because resources are limited, the program designer must make a number of difficult choices. How much money and time can be spent on training? What type of agent do we want and what sort of training program will be adequate to prepare that agent? The best way to suggest how to decide which role is most appropriate is to compare the three roles. They can be distinguished according to (among other things) the relationship of the agent to the client and the resource system, the extent of training each role demands, and, particularly, the locus of primary responsibility for innovation adoption.

We will begin our comparison by discussing some of the salient facts about a "typical" resource linking role. The primary agent requirements are skills in conveying information and in working with client and resource systems for the purpose of extracting information from them. Even at the needs diagnosis stage, a close interpersonal working relationship with the client is not particularly important so long as the agent can acquire necessary relevant information. (For example, Mick suggests various nonhuman agents as alternatives to the field agent. If he or she can be compared to a print-based information system, a field agent need not interact intensively--nor handle that interaction with great skill--to achieve the goal of providing a more effective linkage.)

Such an agent need not spend much time with any client, and, as a result, will be able to obtain fairly wide coverage through a client system. This agent role rests on the assumption that it is the client system's job to do most of the work in changing the schools. If the client system is a horse and an innovation is water, the job of the agent is to provide the horse with a map showing where water is located.

The process helper, by contrast, assumes a much more active role in the change process. There is more emphasis, in this role, on developing a personal working relationship with the client; in general, discussion and interaction will

take place at every stage of the adoption process. The working relationship will generally be characterized as an interaction between equals (though the agents sometimes, particularly when they introduce outside information, will be "more equal" than the clients). Accordingly, specific expertise remains separate from the agent, who has no particular point of view to express or specific innovation to promote. It is far more important for such agents to understand the innovation process itself and how to convey that understanding to their clients than to be highly knowledgeable about specific innovations or possess specific expertise. In short, the agent is an innovation process generalist rather than a resource specialist.

The ultimate goal of the process helper is to become expendable, to have the process of innovation adoption continue independent of the presence of an external agent. In this way, the linkage between user and resource systems becomes internalized within the user system as the linking agent becomes obsolete.

The primary skills for such process helping agents are interpersonal skills in building relationships and teaching skills that can exist independent of knowledge of specific innovations (that is, how to get the knowledge, rather than the knowledge itself). Responsibility for the success of the innovation is shared by agent and client. The agent is

interested in the resource system primarily as a means to convey to the client an interest in, appreciation of, and skill in working with the planned change process. This type of agent is more interested in teaching the horse to use the map to find the water than in either giving it a map or leading it to water, though the teaching may encompass both other steps.

The solution giver, as the term implies, assumes a more directive approach to the implementation/adoption process. (In theory, this type of agent could intervene in a very authoritarian way, as an outside agent coming in, deciding on changes, and then orchestrating them. However, as we have pointed out, a solution-giving intervention is generally preceded by the adoption decision, so that real control rests with the client.) Since the agent is working for the adoption of a specific problem solution (innovation), that agent must have sufficient expertise in the use of that innovation to work effectively to implement its adoption.

But, in addition to this substantive expertise (which, as we have implied, is not necessary to either of the other roles), the solution giver must have mastery of virtually all the skills of the two other roles as well. Assuming that the innovation is complex, the agent must enter the system and provide the client with information links to the resource

system (resource linker) and must build an ongoing collaborative working relationship with the client as they work together toward the goal of making the innovation fully operational (process helper). But, in addition, the agent must oversee and direct the adoption and internalization of the innovation, remaining sensitive both to the immediate needs of the client and to the ultimate goal of full institutionalization of the innovation.

The sophistication of the CBAM process, with its requirement that the agent relate client levels of concern to levels of innovation use, suggests some of the formidable human relations skills necessary for the agent attempting to install an innovation. At every stage of adoption the agent must have understanding of and empathy with the client and a level of expertise in the use of the innovation beyond that of the client. In short, it is the job of the solution giver to lead the horse to water.

It is beyond the scope of this report to suggest which of the three agent roles is "better," but it might be useful to compare their advantages and disadvantages briefly. The resource linker role is characterized by a low level of interpersonal interaction, a high level of client initiative and responsibility, a low level of involvement with each intervention, and a high level of distribution throughout the system. Training for this role can be relatively brief,

straightforward, and apparently inexpensive; it quickly prepares the agent to work in the field.

The role of process helper demands a high level of interpersonal interaction, some client initiative and competence in adopting the innovation, and an intermediate level of agent training. The agent will have low distribution through the system initially, but the transferability (that is, the ability to train others) implied in the role will ultimately give the agent, or at least the linkage function, more thorough coverage.

An effective solution giver is highly interpersonal, with low client initiative and a correspondingly high agent responsibility for overseeing the adoption and institutionalization of the innovation. Training for such agents will be expensive and only partially transferable* (though the agent will often do some process teaching). Thus the solution giver will have the most intensive involvement with the user system, the narrowest coverage, and the most control over and responsibility for the success of the innovation process.

In short, the nondirective agent role is obviously limited, the collaborative process generalist will have difficulty helping with the installation of complex and sophisticated innovations, and the directive solution giver is expensive and difficult

---

*The question of transferability leads us to consider the issue of who will train the trainers, those who will direct the agent training programs. We suggest that a comprehensive program covering all three roles might well be the most effective preparation for these trainers, who, as masters of the change process, would certainly have the knowledge and skills for such a job. If this is true, then there is also a high degree of transferability for this training.

to train. In general, the more extensive the agent's coverage the less intensive is his involvement, and the more thorough the training and the higher the level of expertise the more costly and time-consuming is the preparation.

The accompanying table summarizes some of the distinctions among the three linking agent roles by comparing them according to five characteristics of agents or clients.

Table 1. Comparison of Linking Agent Roles according to Agent and Client Characteristics

	Resource Linker	Process Helper	Solution Giver
Interpersonal Interaction	low	high	high
Client Initiative	high	medium	low
Extent of Agent Training Required	low	medium	high
Agent Involvement with Intervention	low	low	high
Agent Distribution throughout System	high	medium	low

5.

CRITERIA FOR DEVELOPMENT OF A TRAINING PROGRAM

Before we describe some specific agent training programs, we ought to consider some general criteria that are crucial to the design of any effective training program. Here, again, we turn primarily to Havelock's work because it is comprehensive and flexible.

Havelock introduces his section on the selection and training of change agents with some general observations about training goals. The program he outlines emphasizes training the agent for the whole role, but skills training is also a viable approach. Training should stress what is new to the trainee, without neglecting to reinforce positive existing habits. Any training program will be based on teaching skills, but the prospective agent should also acquire knowledge and a positive attitude about the change process from a really effective program. The training should also be as transferable as possible. And, of course, training goals should be

appropriate to the specific situation in which they are to be applied.

Planning the Program

The next section of Havelock's study concerns some criteria of a good training design. These include:

A. Structure: planning and sequencing for logical progress, with flexibility
B. Relevance to program objectives, social needs, and the back home situation, needs, wishes, and background of the trainee
C. Specificity in goals, learnings, and training activities
D. Generality in application of learning
E. Reinforcement, to allow the individual to recognize rewards for changing
F. In-process evaluation and feedback built into program
G. Openness and Flexibility, continual responsiveness to the needs of the trainees; reciprocity and willingness to use trainees as resources when appropriate
H. Linkage of resources and resource persons, in planning, in materials covered, and even among trainees
I. Involvement of the trainees in the training program (to keep them interested)
J. Cost-effectiveness of the program, which usually means the skills training must be transferable
K. Redundancy; repetition of key points, especially in summaries
L. Synergy; the most forceful learning occurs when a number of inputs or stimuli from different sources converge on a single point
M. Training for psychological wholeness of learning, attitudes, skills, knowledge
N. Training for transferability
O. Compatability of training with trainees' experience and situations

Using this as a general framework, Havelock proceeds to outline a design for a training program. This begins with a definition and rationale for the role.

It is particularly crucial that the agent's role, the range of functions he or she must perform, be clearly understood, since agents without such understanding of their role are liable to encounter difficulties resulting from uncertainty about how to focus their effort. In such circumstances two principal problems may arise in the linking process--underinvolvement and overinvolvement. Sieber (1972) notes that the former usually takes the form of inadequate followup, of simply abandoning the client once the information has been transmitted. Causes of this underinvolvement may include a reluctance to feel "too pushy," a feeling of insecurity in the linking role, a lack of time and energy to do everything the job demands, a lack of relevant material to offer, or the sheer complexity of dealing with change implementation in schools.

Rasmussen (1972) notes that overinvolvement may cause the agent to push the client too far too fast or to play such a prominent role in the process that he encourages dependence on himself and interferes with client needs for task accomplishment. As Sieber notes, such activities may lead to misuse or monopolization of agent time, the undermining of client initiative and commitment, and a sense of agent overidentification with clients. These problems seem to be inherent in the linking agent role, though with experience, well-trained agents should be able to budget their time effectively.

Regardless of how the role is defined, a good role rationale should touch on several points, including: the coherence and distinctiveness of the role concept, the need for it, the feasibility of training, the adaptibility of the role, role expectations, and flexibility of client perception.

Another aspect of effective training is designing criteria for trainee selection. The importance of this cannot be overestimated, since the reputation and success of a program may depend as much on the quality of the recruits as of the training itself. This discussion begins with Rogers and Shoemaker's list of some personal traits and abilities that might be desirable. These include:

persistence, high energy, and commitment to work
"empathy with clients" and "client rather than change agency orientation"
"credibility in the eyes of his clients" (Byrnes (1972) observes that credibility may be a function of competency.)
"higher social status among clients"
higher education and literacy--both for status and ability to articulate and defend ideas and resourcefulness
cosmopoliteness, diversity of experience
homophily--similarity to clients in some respects, real and perceived empathy with clients.

Among the attitudes and values that might predispose a person to become a change agent, Havelock lists the following:

concern about and interest in educational process
belief in change as a way to educational progress
belief that new roles can be part of such change
interest in and willingness to assume such a role
interest in and willingness to assume the role of a trainee

interest in continuing personal growth for both self and others
lack of a zealous or excessive commitment to some particular cause

Knowledge of the change process is not needed, but some broad types of knowledge might be useful:

human values and needs hierarchies of various people
scientific values and methods
the state of American education, its structures, and norms
the problems and needs of education

Finally, skills in human relations and communicating and some evidence of organizational ability are also important.

Implementing the Program

We next need to describe ways to provide training to achieve these desired outcomes. Havelock lists a total of 26 features that should be incorporated in the training:

(1) Knowledge inputs should be matched with behavioral. Behavioral inputs should be matched with knowledge.

(2) Trainees should have experiences which integrate all their knowledge and skill learnings.
e.g., a) case study reading and analysis
b) case simulation
c) case expectation and direct experience
d) actual case analysis and reporting

(3) Trainees should simulate experience of their future "role set."

(4) Variety of case materials and activities should match variety of experience in roles.

(5) Trainers should be rewarding at all levels.

(6) Training should build sequentially and logically on itself.

(7) Training should be non-terminal (mechanisms for continuing education should be built in).

(8) Training events should be extended over time in work experience to allow integration into everyday life.

(9) Trainees should be trainers to each other.

(10) Trainees should be self-analysts and evaluators.

(11) Trainees should be contributors to research and development on their role.

(12) Trainees should become a social system.

(13) Trainees should participate in design of own training.

(14) Training should always include knowledge and skills in acquiring more such training.

(15) Training should cover all expected outcomes.

(16) Training should lead to self-actualization of trainee.

(17) Training should lead to feeling of accomplishment by trainee.

(18) Training should lead to enhanced sense of identity of trainee.

(19) Training should lead to greater desire to learn.

(20) Training should lead to greater understanding and concern for the human condition.

(21) Understanding of installation problem should be included in training.

(22) Understanding of rationale for role and larger social context should be included in training.

(23) How to create or acquire role support materials (handbooks, guides, reference, diagnostic, self-evaluation tools, procedures) should be included in training.

(24) Understanding and skill in explaining role to others should be included in training.

(25) Understanding and skill in handling those threatened by and/or attacking the role should be built into training.

(26) Training should lead to social visibility and public recognition of achievement and qualification (degree, certificate, title).

(1971, pp. 67-68)

Having discussed the role definition and training to prepare the agent for it, we next consider ways to set the role in an institutional context. Havelock suggests that there are six basic conditions that must be met for successful installation:

(1) maintenance and reinforcement of trainee's identity as a change agent
(2) security for role maintenance (financial, social, psychological, and legal)
(3) specified limits on role tasks and expectations
(4) freedom to perform in the role in a way that is compatible with the personal needs and aspirations of the agent
(5) rewards for being a change agent
(6) rewards to the role set for accepting the change agent

Among the most important arrangements for installation are a contract with the home organization spelling out the terms of the working relationship, and preparation of the agent and the role set for the actual introduction of the agent into the system.

Evaluating the Training

Any training program, particularly one that is new, demands constant, careful, and thorough evaluation. Such evaluation can have several foci: the rationale for the program and its success in producing intended outcomes, trainee and

trainer satisfaction, and, ultimately, the success of the trainees in the role.

Obviously, some kinds of evaluation are more difficult to make than others. For example, if we attempt to evaluate the actual success of trainees in the role, we are examining ultimate outcomes, but if trainees are not successful their failure may be unrelated to the training program. They may have been poorly selected, the role may have been poorly designed or unworkable, agents may have been inadequately supported in the field, or the client system may have simply refused to accept the agents or the role. Clearly, then, a full evaluation of the training program is inseparable from an evaluation of the entire linking agent program.

The real need in attempting to evaluate a training program is to understand the basic purposes of that program. Specific, measurable goals may then be established and hierarchically ordered so that certain outcomes have been identified as higher priorities of training. But, particularly in developing new programs, stated, immediate goals and priorities may be only approximations to the ultimate end of providing effective training. Indeed, the best programs may be those that are continually being developed and refined. As training is modified, goals may change too; the program may then appear to be a "failure" according to initial standards but be more successful

in training effective agents precisely because of that failure. This further suggests that evaluation should not confine its focus to intended training outcomes; unanticipated results may, in some cases, be the ultimate measure of the value of the training.

The chief subjects of evaluation efforts should surely be the participants--trainers and trainees. The latter might, for example, be given brief attitude tests about the agent role and the training itself at strategic points during the program to measure changes produced by the training (obviously, the most "strategic" times would be at the beginning, middle, and end of the training). In addition, trainees should also be given specific skills and knowledge tests to measure the program's success in producing specified outcomes. And a third measure of trainee reaction might be personal interviews at several times during the program. It might also be helpful for trainees to evaluate each other, particularly in performance on various group exercises, but if such evaluations are attempted, they should be conducted only in nonthreatening ways.

Whatever methods are used for evaluation, they should attempt to measure subjective changes in attitudes and values and objective development of skills and knowledge during the training. Trainers should also be asked for self-evaluations, trainee evaluations, and program evaluations.

While we recognize the importance of evaluation that is cost-effective, we also maintain that, in establishing new training programs, evaluation can be extremely important. Accordingly, we recommend that a team of full-time evaluators be part of the training program, at least in its early stages. This team could design and administer various devices for evaluating the program and participants and could observe and comment on the training itself. At least initially, the evaluators should make formative comments that may be used to alter the design of the ongoing program itself. Since we assign a far higher priority to providing effective training than to obtaining objective evaluations, we feel it would be counter-productive to prohibit the evaluators from making constructive criticism of the training, even if such criticism might bias results by leading to training changes.

(The following section on evaluation design and staffing was contributed by David L. Clark during the meeting at which the second draft of this report was reviewed.)

The evaluation design needs to be planned to produce evaluative output for several audiences, including, at least, (1) data relevant to the needs of local program decision-makers as they attempt to modify and improve their programs, and (2) data of concern to nonlocal planners and decision-makers who wish to use the accumulated evidence from local projects in either formulating policies or initiating or improving programs.

The development of an overall evaluation design for a program of this type should not be undertaken a priori. The actors at the training sites should be involved in the discussion of the feasibility and desirability of the design, instrumentation, and data gathering that will be required to operationalize the design. There are, however, several guidelines that can be established within which the design should be developed:

1. The evaluation design should include provision for both local evaluative components that will generate data quickly for program operators and cross-site common evaluative components that will generate data for immediate and longitudinal comparative purposes.

2. Although early data gathering activities will, of necessity, emphasize the gathering of formative data (may, in fact, be chiefly documentation), every effort should be made to integrate summative data in the longer-range evaluative output.

3. A variety of evaluation models should be encouraged in the local evaluation plans (for example, documentation, CIPP, Discrepancy Evaluation, Goal-free Evaluation, Judicial Model) not only because the local plans should fit the needs of the "locals" but because this will provide an opportunity to assess the output of the evaluation models across sites.

4. The cross-site design will require a negotiated concurrence on both a conceptual framework for the evaluation and a method of evaluation that meets the needs of the national agency and the local participants. The national group will have to assume the initiative in proposing this design.

5. The national level design should concern itself not only with the obvious requirements posed by national decision-makers but should (a) include formative data that will allow for program redesign and model

program proposals of interest to practitioners, and (b) be concerned with gathering evaluative data that can at least generate explanatory hypotheses about the success and failure of local efforts.

While recognizing the fact that the evaluation of this new training program must be considered in the context of cost effectiveness, we nonetheless would argue for a substantial investment in the program's evalution. Specifically, we suggest that:

1. Provision be made at each training site for an evaluator with appropriate support staff to (a) service the needs for information of the local project director and (b) gather systematically the data required as part of the national (cross-site) design.

2. An evaluation team be established at the national program level to (a) implement the cross-site design, (b) coordinate data gathering and analysis across sites, and (c) gather supplementary data as needed at the sites. This group will also have responsibility for generating instrumentation needed at the sites to meet the requirements of the cross-site design.

6.

EXAMPLES OF LINKING AGENT TRAINING PROGRAMS

Our discussion in chapter 4 of the different functions of the three agent roles implies that a "linking agent training program" may be many things, that, in fact, we will have not one such program but several if we are to prepare trainees for the specific roles of resource linker, process helper, and solution giver. These "roles" are not, of course, discrete and unrelated; even in theory many of their functions overlap, and in practice the role definitions are even more fluid. Still, there are distinctions to be made, and, if we accept the roles as theoretical approximations rather than precise descriptions of reality, they can be of use to us.

In describing training for each role, we will utilize existing work, selecting program designs that, in our judgment, suggest something of the range of different types of programs

that may be needed to prepare agents for the different roles. We wish to emphasize that our selections are illustrative, that they imply no qualitative judgments, and that, because our work is theoretical, we have freely utilized work that is also theoretical and that describes programs not currently in operation. (In fact, only the program at Indiana University, which we and not necessarily its designers have suggested illustrates the range of skills and knowledge that agents might need for effective comprehensive solution giving, is actually functioning.)

Resource Linker

The first role we will consider is that of the resource linker. Banathy (1972) reports on a series of training modules, developed by the Far West Laboratory for Educational Research and Development, for educational information consultants (EICs), who perform a role commensurate with that of the resource linker. The second course, based on evaluations of its predecessor, consisted of the following modules:

(1) Introduction to the program
(2) Simulation of the EIC role
(3) Negotiation: identify, analyze, assess, and specifically define the problem and the attendant information needs of the client
(4) Retrieval: identify, locate, and secure relevant information, formulate search strategy, using the widest feasible range of materials
(5) Transformation: screen, analyze, and/or synthesize and organize search results into a form appropriate for delivery

(6) Communication: present the package of transformed information to the client and explain how the package can be used to solve the problem
(7) Evaluation: consider the success of the intervention; include self-assessment and client feedback in terms of the EIC process, role, and function within the information network

Similarly, the training program developed jointly by the Institute for Communication Research and the System Development Corporation and reported by Mick and others (and hereinafter referred to as the Mick study) is primarily concerned with preparing agents for this role. Indeed, much of the report discusses ways that nonhuman agents can link school and resource systems. Accordingly, where there is a human linker, "The primary role of the Field Agent is to provide linkage between information sources,..and information users" (148). The report notes that there are variations in how individual agents will interpret the role, but the training program is confined primarily to resource linking, and "no attempt is made to encompass the most extreme interventionist approaches (e.g., working intensively with a district to implement new procedures)."

Within these terms, the report discusses the linking functions for this kind of field agent. The skills and knowledge necessary to those functions are the following:

1. Publicity Activities
   ability to describe and discuss the role and publicize the program
   knowledge of typical organizational patterns in schools and of typical barriers to innovation adoption
2. Identification of client information requirements
   ability to understand and work with client problem statements

skill in asking questions that elicit useful answers
ability to translate client problems into information requirements
ability to restate a problem as an information request

3. Identification and selection of information for clients
ability to summarize information requests and develop search strategies
ability to use ERIC descriptors and supervise local searches
ability to assess the relevance of search results to actual client needs

4. Delivery of search results and development of plans for future contacts
ability to show client how to use material
ability to schedule time to handle followup and to handle new requests

5. Followup activities
understand the various change agent roles, and recognize own abilities in terms of requirements for each role
understand performance objectives against which work is to be measured
ability to use evaluation and reporting forms

The actual training program Mick outlines includes not only field agents but also program administrators and retrieval specialists. The program is divided into three blocks of modules, with one part of the training for all trainees, the second block for retrieval specialists alone, and the third for administrators and field agents. The first block consists of the following modules:

The growth of educational research and development
The emergence of educational dissemination systems
Present and future shapes of educational dissemination systems
Field trip to an operating educational dissemination center
Overview of service operations that might contrast with those seen on the field trip
The client system and the resource system in educational dissemination

Personnel roles in the linkage system
Introduction to computer-based educational information systems
Retrieving ERIC information
Negotiating queries
Selecting equipment for an educational dissemination center
Overview of educational innovations
Packaging and communicating search results
Finding and using human resources
Documenting and evaluating service activities

Other training activities for all types of trainees include an orientation session, pre- and post-training self-assessment of skills and knowledge, assessment of the modules themselves, and a group exercise in which project managers, field agents, and retrieval specialists work out entire delivery episodes, from information requests to followup. The second block of modules is not directly relevant, but the third, for field agents and project managers, is:

Establishing contacts with school personnel
Negotiating queries (detailed approach)
Retrieving ERIC information (adapted for field agents)
Starting and operating a field office (this is for field agents alone)

The actual training program in which the modules were taught consisted of a five-day, 40-hour week, a "schedule in which the interplay of joint and separate sessions has been worked out while preserving the flow of content from knowledge to skills." The sessions included lectures and demonstrations, role-playing, skills practice, and discussion. After the first such session, the program was modified to emphasize preparatory reading and group discussions rather than lectures. (See Appendix B for a list of selected training resources used in

this program.)

After training, when the agents are in the field, some inservice training may be useful, perhaps utilizing "specialized training packages" like those developed by Heathers at Research for Better Schools (RBS) or Jung at the Northwest Lab. In addition, it is important for trainees to work on local adaptations of the program. Obviously, the training program is little more than a point of departure for really learning the agent role. Some agents may, in the course of their work, begin to intervene more intensively than the program envisions, depending on such variables as individual differences among agents, the varying capabilities of the resource centers they work from, and even the size and nature of their territories. At any rate, this program prepares agents to cover wide territories, and the training time is brief.

Process Helper

For the process helper Havelock outlines what he calls a "Sample Model of a Fully Developed Training Program." In describing what this agent should do, Havelock observes that the agent should be someone who:

> (1) understands the process of educational innovation through effective and collaborative utilization of resources, and (2) is able to transfer this understanding to others. This individual should be an expert who imparts specifically useful understandings and skills relevant to the process of innovation in all its dimensions.

The nature of the role is evident from the list of skills that are considered desirable outcomes of the training program:

(1) Build helping relationships with clients
(2) Diagnose client needs
(3) Acquire resources relevant to diagnosis
(4) Generate a range of solution ideas and choose from among them in collaboration with the client
(5) Develop strategies to gain acceptance of the chosen solutions
(6) Design and install mechanisms for the self-renewal of the innovations
(7-12) "Of equal importance to the above six skills is a corresponding set of training skills, to impart these skills to others and to teach clients to be their own problem solvers."
(13-18) Be an expert on how to gain further training in these areas
(19) Become an articulate spokesperson for planned change
(20) Develop an ability to develop evaluative criteria and design evaluations

Thus this agent, a process helper, will also be able, where appropriate, to serve as a resource linker.

The training program covers almost an entire year. It begins with a two-month planning phase in which the course is prepared and the trainees are selected and given preparatory materials. The first workshop lasts four days and consists of

Unit #1 What is Planned Change? Three Perspectives
Unit #2 Who is a Change Agent? Why is it important to Develop Such a Role?
Unit #3 Who is the Client?
Unit #4 Relationships
Unit #5 Nondirective consultation
Unit #6 Diagnosis
Unit #7 Working with the Role Set
Instructions for On-the-Job experience
On the Job for three months, with practice in nondirective

counselling, and building working relationships
Reading on Resource Acquisition and Solution Choosing for Second Workshop

The second workshop lasts three and one-half days and includes

Review of Diagnostic Activities
Review of Role Development Activities
Counselling and Conflict Resolution Skill Practice
Unit #8 Resource Acquisition
Unit #9 Solution Choosing
Complete Case Simulation Exercise
Case Building and Recording
Instructions and Discussion of On-the-Job practice

The next six months are spent on the job with log taking, case development, reading on dissemination, evaluation, and self-renewal, and continued on-the-job practice of skills.

The third workshop, covering two and one-half days, includes

Review and Critique of Cases
Unit #10 Gaining Acceptance
Unit #11 Generating Self-Renewal
Unit #12 Evaluation Process
Evaluation of the Workshop Training Experience
Plans for Continued Training of Self and Others
Plans for Continued Role Development
Plans for Continued Building of a Self-Renewal Capacity for the State

The program includes a trainee notebook and a reading list, which is included in Appendix C. The suggested content of the workshop sessions includes readings, large and small group sessions, question and answer periods, skill practice sessions, written exercises, and lectures. Other programs might also include simulation exercises, role-playing sessions, and even sensitivity-like group interaction sessions. As always,

the role definition is crucial to the shape of the training.

Solution Giver

The role of the solution giver and the training for that role are rather more elusive than the other two roles. If the agent is actively involved in needs diagnosis and adoption decisions, plays a solution-giving role there, and subsequently directs the implementation of that solution, the range of linking skills that agent will need may be quite imposing. If, on the other hand, the linking activity begins after the decision for adoption, the agent will need primarily skills in working with the innovation, and, as CBAM emphatically illustrates, an extraordinary range of skills and knowledge in interpersonal relations. Bhola describes an extensive agent training program that, while not directly applicable to all types of solution-giving roles, clearly illustrates how thorough and intensive training must be if the agent is to perform solution-giving functions with maximum effectiveness.

This program, a specific curriculum emphasis in the Instructional Systems Technology Division at Indiana University, is referred to as "perhaps the first comprehensive program of training in D&A (diffusion and adoption) in education in the country." The program consists of four core area courses, with a fifth course as the diversifier. Each course carries three semester hours of university credit:

Introduction to Diffusion and Adoption of Educational Innovation
: A thorough overview of the contemporary context of innovation diffusion and adoption

D&A in Education: Models, Techniques and Applications
: A study of the process of change, and of change models, and their applications to the educational process

The Individual, The Group, and Planned Change: Social-Psychological Determinants
: A study of the psychological principles and social-psychological forces relevant to resistance to change

Sociological Aspects of Innovation Diffusion in Education
: A study of the dynamics of the school as a social system and its relation to educational innovation

Individual Research in Instructional Systems Technology
: An individualized course to meet individual student needs

This program is part of a four-year degree program. The trainee who has completed this course of studies, including both these core courses and related work in the rest of the university curriculum, would have an extensive and sophisticated knowledge of virtually the entire process of planned change in education. Accordingly, such a person would be able to perform virtually any function in the diffusion and adoption process in educational innovation. This is probably the most thorough preparation available for linking agents.

7.

INSTITUTIONAL SUPPORT FOR LINKING AGENTS

Thus far in our analysis of linking agent roles and description of training programs for those roles we have made an apparent assumption that agents can somehow be discussed apart from their support mechanisms. To view linking as solely the function of individual agents (or even small teams) ignores the need for support mechanisms to provide the agents with better linkage to the resource system and with ongoing training and necessary field support.

The need for institutional support for linking agents is apparent even in the notion of linkage; the agent must have access to a resource system to link with the user system. In discussing institutional support, it is also crucial to recognize the importance of utilizing existing linkage activities. A viable approach to developing a comprehensive linking team

should be to supplement and work with, not replace or compete with these existing linkage activities found in various organizational settings.

Accordingly, we preface our discussion of a linking team with some observations about places where full and part-time linking agents currently reside. For example, resource linkers work primarily out of intermediate service agencies, state education departments, and ERIC clearinghouses; process helpers are usually found in colleges of education, private agencies, and consulting firms; and solution givers normally reside in colleges of education, regional laboratories, R&D centers, and commercial publishing firms. One important aspect of establishing a comprehensive linking team is the effective identification and utilization of such available linking activities.

The following description of a linking team is intended to be theoretical and tentative, a useful starting point, not a definitive outline, for the design of a successful program. To begin with, since most training programs are designed to prepare agents to do some but not all of the potential agent functions, we suggest the establishment of a whole network of interdependent agents working as a team, those trained in one role supporting those working in other roles. (This is not, however, to imply discrete roles, but rather a complex of

overlapping but ultimately complementary clusters of agent functions.) Such a team would be capable of multiple and diverse interactions with client systems, with the resource system, with other linkage systems, and even within itself.

No single agent would be expected to perform all the linkage functions. Solution givers would be trained in the use of certain specific innovations and be able to help with their adoption as necessary. Resource linkers would be trained primarily to work nondirectively, but they would also be able to work collaboratively or directively, and, more important, would be familiar with support personnel in the system able to provide whatever additional expertise might be needed.

Our process helpers would work with the client systems; but they would call in solution givers to protect the integrity of the innovations themselves, in recognition of the fact that some but not all interactions can be reciprocal and collaborative, that there are times when the adoption of a specific innovation may be more important than developing a client capacity for self-renewal, that some problems of translation are due to the developmental level of the client rather than a need for adaptation of the innovation. Part of the definition of each agent role will be a knowledge and understanding of alternative roles and an ability to interact supportively with agents in other roles.

The team can, then, have the wide coverage of the resource linker without sacrificing the ability to interact intensively with certain clients. Instead, the team can personalize its interactions, tailoring each to the particular needs of the individual client. The team will be able to handle information requests, to help clients master the innovation process, and to offer help with the installation of specific innovations.

Another important advantage of this team would be its ability to expand its linkage activities, to make the interaction between client and resource systems more effectively bidirectional. For example, the information requests the resource linker receives would also become input into research and development agencies, so that product development would be based on diverse and complex client inputs into the R&D process. As much of the research and development system (primarily university researchers, research and development centers, and regional educational laboratories) presently operates, these agencies, as part of their output, produce specific innovations to be used in the schools. With the linkage system we envision, there would be virtually an ongoing client-R&D system interaction throughout the R&D process, bringing the R&D products increasingly closer to the actual needs of the user system.

Our linkage network would also compensate for the failure of

RD&D approaches (viz. CBAM) to speak directly to the mechanics of the decision for adoption, since that function would be facilitated by other agents in our system. Information about specific innovations would be part of our resource system, but agents helping with diagnosis would be uncommitted to specific innovations as problem solutions. After the adoption decision, the solution giver would be available to intervene in and facilitate the adoption process, respecting the integrity of both the innovation's intrinsic properties and the unique needs of the specific environment into which it is being introduced. (In practice, this kind of balanced approach might be most likely to occur with a team of agents, not, as Sieber recommends, drawn from different levels of the school system, but from the different agent roles of solution giver and process helper. These partnerships would develop and dissipate as they were needed, being pragmatic, dynamic, and temporary.)

In addition, this team could also achieve the fullest and most effective linkage at all levels of the educational system. The solution givers would be housed within R&D agencies, as befits agents whose primary concern will be innovation-specific. The highly mobile resource linkers, with large territories to cover anyway, could be housed within the state educational agency, where their presence would legitimize the linking network by giving it the obvious sanction of the top level of the

educational hierarchy. And the process helpers, whose more intensive interactions with their clients and greater involvement with the general innovation process, should be housed as locally as possible, in local educational agencies or intermediate education districts. Thus the identity of the team itself would be independent of any specific part of the state's educational system, while each agent would be housed in the place most appropriate to the primary function of that agent's role.

Finally, the network headquarters itself might be housed in some location central to a state or region. The project director or manager and support personnel would be housed here, and it would be the site of monthly intra- and inter-agency workshops and discussions. We suggest the 16 clearinghouses in the ERIC network be considered as potential sites for the location of the headquarters. In fulfillment of their tasks of information collection, analysis, and dissemination, the clearinghouses have already established relationships with the major groups of researchers and practitioners, and the clearinghouses' independence of all these groups would lend credibility to and help to preserve further the independence of the linking team.

The training program for agents in such a system would include sessions in which trainees learned alternative roles, the operation of the entire team, and the potential interactions among its various components. In addition, the role definition

of each type of agent would be expanded to include an ability to interact fruitfully with other agents in the system. Each agent would also be expected to have the ability to determine when the client had need for additional help and perhaps to facilitate the entry of another agent.

While this network is purely theoretical, it would be versatile and comprehensive. More important, it provides for flexible and overlapping agent roles and allows the widest possible range of potential linkages throughout the resource, linkage, and client systems.

8.

RECENT RESEARCH EVIDENCE ON LINKING AGENT ROLES AND TRAINING

Now that we have discussed change models, agent roles, and training programs from a theoretical standpoint, we should turn our attention to research evidence bearing on the subject. Unfortunately, as we shall see, there is a distinct shortage of empirical research material; and the work that has been done has reached conclusions that are either tentative in nature or dubious in their applicability.

One subject about which there is little uncertainty is the importance of interpersonal contact as a way to improve linkage. Roling's (1971) findings, while derived from a study of agricultural diffusion, are typical of most of what has been written about the importance of interpersonal contact. He concluded that "the sheer frequency of contact between client and change agent could best explain the extent to which the client had adopted innovations" (p. 1).

Wiener (1972) reports on a study that seems to suggest that, while quantity of contact may be crucial, quality may be less important. A study was made of the relationship between agent-school principal compatibility and principal innovativeness, with the anticipated result that consultants would be significantly more compatible with innovative than noninnovative principals. The actual results showed instead that all principals were relatively compatible with the consultants.

There have been efforts made to initiate actual linking agent projects and measure their effect on education. For example, Robinson (1973) reports on a District of Columbia Research Utilization Project, a program specifically designed to facilitate school use of a computer-based knowledge network (that is, resource linking). The study concluded that more searches were made in target schools than others and that the number of searches increased during the program. In addition, the results supported the hypothesis that general satisfaction is related to interpersonal involvement. What this evidence shows is that a concerted effort to facilitate use of a knowledge system could induce an increase of that use, which is to say that the basic concept of using agents to increase research utilization is viable.

If Robinson's findings suggest that resource linkage is better than no linkage at all, other studies have reached more precise conclusions about the linking role. Sieber, for example,

conducted a massive evalution of three pilot state dissemination programs and reached several conclusions about the most effective ways of defining the linking agent role. He found that the agent's marginality (status as an outsider without authority whose presence is legitimized by the provision of information) was actually an asset rather than a liability as has previously been supposed, since it gives the agent a special status and, more important, protects the dissemination program from the internal politics of the user systems.

In addition, the agent role as a generalist is important. The study concluded that the field agent generalist was superior to the subject matter specialist in inducing educational change. The generalist has a repertoire of referral and change agent skills, but expertise remains independent of the agent. The advantages of this separation are two-fold: it eliminates the possibility of status differences between agent and client based on the agent's position as an "expert," and it may mean that the agent will not necessarily be held responsible for any bad information the resource system may provide the client. This separation can be maintained most effectively if the agent is not introduced as an instrument of change but as conveyor and interpreter of available information.

The third important aspect of the agent role is the ability to follow up with clients after the information has been delivered.

Interestingly, the assistance of the agent seemed to be valued more than the information, and interpersonal contact was considered more useful than printed information. This fact led Sieber to speculate that "it remains an intriguing possibility that the field agents contributed less to the value of the information than the information contributed to their value" (p. 541). This in turn raises interesting possibilities about the utility of any agent role that simply calls for linking the client system with the knowledge base.

Sieber also makes several recommendations about the resource linker role; since they are based on empirical evidence, even those that are not original are worth reiterating:

There should be one agent for approximately each three hundred clients.

Teams of agents should be used when possible. This allows for mutual support, sharing of insights, reduced overload, improved followup, and increased coverage. In addition, there is considerable evidence that agents tend to gravitate toward those who occupy the positions they held before becoming agents, so a balanced team might include a former administrator and a former teacher.

Agents should reflect the educational outlook in the areas they serve.

Agents should be nonauthoritarian, patient, able to tolerate delay and frustration, with low needs for ego-aggrandizement, the capacity for enjoying working with a wide variety of people, good communication ability, and, above all, the ability to adapt to different situations and individuals. In addition, "whether the agent is male or female seems to be an irrelevant factor."

The role should be widely publicized, particularly through informal meetings.

Agents should identify and work with opinion leaders and self-starters.

Agents should work to establish credibility at the beginning of the program by responding to all requests; after

successful entry, they may focus their efforts on diagnosis and attempts to stimulate requests for information relevant to the local situation.

Agents should attempt local [onsite] information retrieval only under extreme time pressure [of either agent or client].

Agents should carefully consider when support personnel can be helpful.

Agents should review and screen retrieved materials, particularly on early requests, to prevent the client from receiving irrelevant or inappropriate material.

Agents should always follow up information delivery as appropriate.

Agencies should be set up for self-renewal.

Agents should receive onsite and offsite training for at least a year in the beginning of their work.

Mojowski and Mellor (1974) report on a similar program in Rhode Island. Their findings corroborate several of Sieber's. In that program a group of subject matter specialists was trained to work as process generalists. At the midpoint of the program it was evaluated, and, as a result, "the role of the consultant was broadened from that of information consultant and linker to one that included responsibility for providing assistance in needs assessment, planning, dissemination and change strategies, and research and development techniques" (p. 7). Again the suggestion is that a role definition that merely links users and resource systems may not be adequate to meet client needs.

The report asserts that the linking role needs to be defined more broadly and substantively: "It is possible, given training and support, to enhance the role of consultant to one which contains both linkage skills and problem solving expertise and process skills" (p. 17). This evidence suggests that agents

chosen to work in specific fields such as reading and career education should be recruited from among resource specialists in those fields, but such a hypothesis is obviously in need of further empirical validation.

While this tentative evidence has uncertain implications, it seems to suggest that the roles of resource linker and process helper are viable, if not of equal value. There is other evidence, however, that raises questions about the RD&D model of educational change. This is not, of itself, particularly significant, since we have already noted that none of the change models is perfect. However, the role of solution giver is implicitly derived from the RD&D model, so analyses of that conceptualization are certainly relevant to our discussion.

Although some findings do not directly challenge the RD&D change model itself, they do call into question several of the implications Havelock derived from it. For example, two teams studied centers where innovations were demonstrated to visitors. In both cases, responses to the innovations were favorable; in neither case, however, did a favorable response lead to widespread adoption of the demonstrated practices. These tests did not include field agents, so what they seem to indicate most emphatically is the need for linking agents. Nevertheless, their results do seem relevant to some of the assumptions of the RD&D model. House and others (1972) observed one center and concluded:

> The fact that visitors valued the demonstration highly had little relationship with later adoption. Situational constraints in the adopting district seemed to be of greater importance than the intrinsic characteristics of the demonstrated program or the process of demonstration itself. (p. 11)

Kerins and his colleagues (1971) reached equally definite conclusions: "The perceptions of intrinsic merits of the demonstration program are less important than the availability of outside help" (p. 7). Nor do they refrain from generalizing from these results: "That follow-up should be more important to adoption than the nature of the demonstrated program suggests something may be wrong with the model itself" (p. 8). These results are consistent with the social interaction change model. Kerins further comments, "As Havelock notes, only this change model has substantial empirical verification" (p. 8). They tentatively conclude: "Although one cannot disprove a paradigm with one case, we are now rich in experience and data to seriously challenge the whole Research and Development model of change" (p. 9).

While "Research and Development" is not the same as RD&D, the point is well-taken, and we need to reconsider the model, with special attention to recent analyses of it. House (1974), for example, challenges the idea that cost-effective innovations can be designed as products that can be used everywhere without adaptation. The obvious conceptual flaw in such a notion is its implicit denial of the uniqueness

of each user environment. Because it fails to respect the importance of "different local situations," this approach is deficient in realism, and therefore, one might assume, at least partially inadequate.

But this problem may be merely symptomatic of the crucial deficiency in existing conceptualizations of the RD&D model. Clark and Guba (1974), who were instrumental in designing that model in the first place, are now particularly dubious about the value of a system characterized by highly centralized planning and the compartmentalization of various aspects of the RD&D process into discrete functions. They criticize this "systems" view of RD&D as a machine-like process with innovations developing sequentially from the initial planning decision to the final goal of improved education. Stated crudely, this view conceives a process in which planners decide what is needed and order its development, RD&D centers crank out needed products ready for adoption without adaptation, and it is only the obtuseness of the user system in failing to accept these marvels that prevents the arrival of the millennium.

The point is that the user systems do reject these products, and, Clark and Guba maintain, will continue to do so, as long as the RD&D process continues to be defined as a "system." Instead, they argue, a configurational view, conceiving the educational network as partially describable by the model of a community rather than a machine, meets the criteria of completeness,

balance, and realism. This model accepts decentralized planning, overlapping, ambiguous and co-equal roles, and orientation toward goals that are emergent and idiosyncratic rather than centrally planned, generally known, and universally shared. Such a model describes how the RD&D process actually does work, rather than how it ought to work, and further suggests that it is not the RD&D model itself but rather the systems view of that model that has proved unworkable. This view suggests that our conception of the solution-giving linking agent is not intrinsically unworkable, but that, as we have noted, it would be a mistake to separate this agent role from other agent functions or even to assume that adoption without adaptation is very likely to occur.

9.

SUBJECTS FOR FURTHER RESEARCH AND CONSIDERATION

Despite the voluminous literature on innovation diffusion, much work remains to be done, many questions remain unanswered. For example, one subject that clearly demands further careful consideration is the question of how to formulate criteria to evaluate the success of a given innovation. Virtually everyone agrees that evaluation is a key part of the entire dissemination process, but no one has a clear idea of all the dimensions involved in such an evaluation. Instead, the primary measure of the success of an innovation seems to be the extent of its adoption. This implies that any innovation will be desirable; with such an assumption the more fully an innovation is implemented the more successful the process has been in the ultimate aim of improving education.

Leaving aside the possibility that even the best innovations may be implemented inappropriately, the defining assumption of evaluations based on extent of adoption (and, indeed, of this report itself) is that the research system produces only useful, validated innovations. But Miles (cited by Huberman) and Mick (1973) both refer to the low quality of much of the research that has been done, and Mick makes the further claim that "bad" research is no less likely to be implemented in schools than "good" research. (The adjectives good and bad evidently refer to the caliber of the methodology used in the research rather than the objective desirability of use of the innovation. There is no inherent reason why a research project done under the most haphazard circumstances could not yield valid findings; on the other hand, there is also no reason a room full of monkeys and typewriters could not produce "King Lear," though the state of English literature is not dependent on it happening in the next few years.)

Any time "bad," unvalidated knowledge is applied to a school, the testing is actually being performed on that school, with the educational system and unwitting students as the subjects of the experiments (though there may be no competent observers present to document the results). It would surely be preferable for schools to be asked to use only findings that have been as fully validated as possible. Some way is needed to assure that this is done.

Perhaps it is beyond the scope of this report to suggest that

someone find out why so much work is being done on disseminating innovations that may have little or no practical value. While this report is designed to explore ways to narrow the gap between research and utilization, proceeding from the user side it might be fruitful to consider the converse question of how to get the research closer to the actual conditions in the user system (as RBS, among others, seems to be doing). But as Mick observes, not only is little applied research being done, but there is a kind of stigma attached to "applied" as opposed to "pure" (and note even the semantic implications of the two words) research.

According to Simonds (1973), another aspect of the innovation dissemination process that has been neglected is the study of the forces that work to inhibit change. In fact, compared to innovation diffusion in industry, change inhibition is actually a pervasive phenomenon in education. The attention that has been devoted to the subject is scarcely consistent with its prevalence. In addition, such studies should be open-minded, without any implicit condemnation of those who oppose change. If the discussion of what can happen to "bad" research has made anything clear it is that those who resist certain innovations may actually be doing far more to help education than change agents.

Hopefully this is not often the case, but it certainly illustrates the need to accept and understand the functions of change resistance. For example, the college training program Bhola describes includes an entire academic course related to this

subject. But the widespread idea that reasons for resisting change are really only rationalizations, while it may be true, certainly does little to encourage the change agent to respect or learn to empathize with the resister, who is, after all, a potential client.

Much of the research that has been done about linking agents assumes that the role exists in a void; clearly, any linkage model being discussed is likely to lead to more effective resource utilization than would take place in the absence of any agent. What is needed are rigorous comparative studies to determine which types of agent role are most effective under which circumstances. Work on state pilot programs has made a start in this direction, but more extensive and systematic comparisons need to be made.

Ultimately, despite the work that has been done, we find that many questions remain unanswered, and, in a few cases, unasked. For example, Havelock reports (in Temkin and Brown 1974) on a survey of school superintendents reporting on innovations in their districts. The study showed that most schools do innovate and that they do so largely without outside help. The portion of the analysis devoted to participation showed an "almost total absence of mentions of outside resource groups." Despite this absence of outside linkage, the "findings suggest a continuous ferment of change in almost all U. S. schools...many of these changes are profound...complicated, involve many partici-

pants, require many types of skills" (pp. 78-9).

Nor is this an isolated finding. For example, Wolf, reporting on a Massachusetts diffusion survey, noted that "most of the successful institutional change endeavors described were initiated, sustained and consummated without the assistance of change agents external to the locus of change" (p. 19). Further, "the vast majority of previous successful involvements in institutional change reported were most complex undertakings" (p. 19).

Greenwood and others (1975, vol. 3) discovered a similar pattern:

> That is, most districts initiated federal change agent projects primarily either because money was available, or as a solution to a specified local need. In only a few instances were projects suggested by new information or outside change agents (n.b. "social interaction" and "linkage" models of change). (p. 64)

In addition, "Change agent projects were usually designed utilizing information or treatments that were already known locally, rather than employing information gathered in a search for alternative practices" (p. 64).

On top of this evidence we finally mention Scriven's (in Rogers and others 1973) claim that diffusion works exceedingly badly, and, further, where it does work, it is not clear that education benefits from it. If this is true, even basic assumptions should not be safe from scrutiny, and nothing can be taken for granted. We must conclude that much empirical research, designed in recognition of the difference between testing a theory and attempting to vindicate it, remains to be done.

10.

SUMMARY

Our analysis of educational linking agents has proceeded from a general discussion of the diversity of the existing educational change literature to a description of potential linking agent roles. Given the diversity of the theoretical change literature it was not surprising that we deduced not a single agent definition but rather three principal types of linking agent roles, those of resource linker, process helper, and solution giver. We recognize that, in practice, the functions implied in these roles will frequently overlap. Nevertheless, by discussing these ideal roles descriptively and comparatively we were able to focus on the different priorities of each role and still encompass the entire range of potential agent functions.

Just as there is no one type of "linking agent," so there can hardly be a single program for training such agents. As a result, the aims of our chapters on training have been tentative and informative rather than definitive and instructional.

Ideally, our discussion of empirical studies of various linking agent roles would have been the heart of this analysis, expanding, clarifying, and illuminating our treatment of existing theoretical work. Unfortunately, this was simply not possible because of significant gaps in that empirical knowledge. While the studies that have been done should not be ignored, they are primarily useful in suggesting the need for further work and the directions such work might most usefully take. Accordingly, while we have devoted a single chapter to areas for further consideration and study, we might equally appropriately suggest that our whole analysis be placed under such a heading.

Appendix A

The following individuals provided written comments on the first draft of the report.

Launor F. Carter
Vice President
Systems Development Corporation
2500 Colorado Avenue
Santa Monica, California 90406

David L. Clark
School of Education
Indiana University
Bloomington, Indiana 47401

Thomas Clemens
National Institute of Education
Washington, D.C. 20208

David P. Crandall
Executive Director
Network of Innovative Schools
The Manufactory
Mechanics Street
Merrimac, Massachusetts 01860

Jack Culbertson
Executive Director
University Council for Educational Administration
29 West Woodruff Avenue
Columbus, Ohio 43210

William H. Curtis
American Association of School Administrators
1801 North Moore Street
Arlington, Virginia 22209

Terrence E. Deal
Stanford Center for Research and Development in Teaching
Stanford University
Stanford, California 94305

Gene H. Hall
Research and Development Center for Teacher Education
University of Texas
Austin, Texas 78712

Byron W. Hansford
Executive Secretary
Council of Chief State School Officers
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Ronald G. Havelock
International Bureau of Education-
Palais Wilson
CH-1211 Geneva
Switzerland

Paul Hood
Far West Laboratory for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103

Charles C. Jung
Northwest Regional Educational Laboratory
710 S. W. Second Avenue
Portland, Oregon 97204

Robert Katter
System Development Corporation
2500 Colorado Avenue
Santa Monica, California 90406

Owen B. Kiernan
Executive Secretary
National Association of Secondary School Principals
1904 Association Avenue
Reston, Virginia 22091

Richard J. Lavin
Executive Director
Merrimack Education Center
101 Mill Road
Chelmsford, Massachusetts 01824

Richard A. McCann
Research for Better Schools, Inc.
Suite 1700
1700 Market Street
Philadelphia, Pennsylvania 19103

Harry W. Osgood
Director
Educational Resources Center
Area Cooperative Education Service
800 Dixwell Avenue
New Haven, Connecticut 06511

Alice Paul
Arizona Center for Educational
Research and Development
University of Arizona
Tucson, Arizona 85721

Lewis A. Rhodes
E. F. Shelley and Company
8401 Connecticut Avenue
Suite 700
Chevy Chase, Maryland 20015

Everett M. Rogers
Institute for Communication Research
Stanford University
Stanford, California 94306

Philip J. Runkel
Center for Educational Policy and
Management
University of Oregon
Eugene, Oregon 97403

Susan Stier
Seattle Public Schools
815 Fourth Avenue North
Seattle, Washington 98109

J. Loren Troxel
Superintendent
Seattle Public Schools
815 Fourth Avenue North
Seattle, Washington 98109

Appendix B*

SELECTED TRAINING RESOURCES

A. MAJOR RESOURCES

Center Sources: A Collection of Materials Currently in Use by Educational Information Centers. King of Prussia, Pennsylvania: Research and Information Services for Education (RISE). (Prepared for National Conference of Educational Information Centers, Downingtown, Pennsylvania, Sept. 19-21, 1972.)

The Educational Information Consultant: Skills in Disseminating Educational Information. Berkeley, California: Far West Laboratory for Educational Research and Development, 1971.

Havelock, Ronald G. Training for Change Agents. A Guide to the Design of Training Programs in Education and Other Fields. Ann Arbor, Michigan: Institute for Social Research, 1971. (ED 056 259)

---

*The following titles are taken from a list of Selected Training Resources in

Mick, Colin; Paisley, William; and Paisley, Matilda. Development of Training Resources for Educational Extension Services Personnel. Volume I, Final Report. Stanford, and Santa Monica, California: Institute for Communication Research, Stanford University; and System Development Corporation, 1973. pp. 164-171.

Havelock, Ronald G., and Mary C. Havelock. Preparing Knowledge Linking Change Agents in Education: A Materials and Training Development Project. (Final Report). Ann Arbor, Michigan: Institute for Social Research, 1971. (ED 056 257)

Havelock, Ronald G. A Workbook to Checklists to Accompany "A Guide to Innovation." Ann Arbor, Michigan: Institute for Social Research, 1971. (ED 056 256.)

Koelling, Charles H., et al. Pilot Training Project for Personnel Participating in Pilot State Dissemination Programs. (Final Report, OEC-0-70-4724). Columbia, Missouri: University of Missouri, 1972.

Mathies, M. Lorraine and Peter G. Watson. Computer-Based Reference Service--Tutor's Manual. Dallas, Texas: Reference Services Division, American Library Association, 1971.

McCleary, William, Brickley, Richard R., et al. Notes on Establishing an ERIC Educational Information Center. (Draft copy, 1972).

Pilot State Project Materials.

Sherman, C. Neil, et al. The Educational Information Center: An Introduction. Los Angeles: Tinnon-Brown, Inc., March, 1969.

Sieber, Sam D., et al. (Draft of Final Report on the Evaluation of the Pilot State Dissemination Program). New York: Bureau of Applied Social Research, 1972.

Weisman, Herman M. Information Systems, Services, and Centers. New York; Becker and Hayes, Inc., 1972.

B. OTHER REFERENCES AND RESOURCES

A Guide to Educational Resources. Berkeley, California: Far West Laboratory for Educational Research and Development, 1971.

Anglo-American Cataloging Rules. (Prepared by American Library Association, Library of Congress, the Library Association and The Canadian Library Association). Chicago: American Library Association, 1967.

Handbook for Organization Development in Schools. Eugene, Oregon: Center for the Advanced Study of Educational Administration.

How to Use ERIC. (Available from GPO, OE-12037).

Interpersonal Communications. Portland, Oregon: Northwest Regional Educational Laboratory (NWREL).

Linking Schools and State Education Departments to Research and Development Agencies: Analysis of Literature and Selected Bibliography. Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, September, 1971.

Linking Schools to State Education Departments: Analysis of Literature and Selected Bibliography. Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, September, 1970.

Microform Retrieval Equipment Guide. Washington, D.C.: National Archives and Records Services, General Services Administration. (Available from GPO, 7610-181-759m79).

Preparing Education Training Consultants. Portland, Oregon: Northwest Regional Educational Laboratory (NWREL).

Procedures for Managing Innovations: Analysis of Literature and Selected Bibliography. Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, September, 1970.

Product Demonstration Training Packages. Berkeley, California: Far West Laboratory for Educational Research and Development.

Profiles of Educational Information Centers. (Participants in National Conference of Educational Information Centers, Downingtown, Pennsylvania, September 19-21, 1972.) King of Prussia, Pennsylvania: Research and Information Services for Education, September, 1972.

Standard for Descriptive Cataloging of Government Scientific and Technical Reports. Washington, D.C.: Committee on Scientific and Technical Information (COSATI), Federal Council for Science and Technology, 1966.

The DAP Joint Problem-Solving Process. Eugene, Oregon: Center for the Advanced Study of Educational Administration.

Training System for Development, Dissemination, and Evaluation Personnel. Berkeley, California: Far West Laboratory for Educational Research and Development.

U.S. Office of Economic Opportunity. Catalog of Federal Domestic Assistance. Washington, D.C.: Government Printing Office, 1971.

U.S. Office of Education. Education Directory. Washington, D.C.: Government Printing Office, 1970.

Becker, Joseph and Robert M. Hayes. Information Storage and Retrieval: Tools, Elements, Theories. New York: John Wiley and Sons, 1963.

Bourne, Charles P. Methods of Information Handling. New York: John Wiley and Sons, 1966.

Burke, Arvid J., and Mary A. Burke. Documentation in Education. New York: Teacher's College Press, Columbia University, 1967.

Chorness, M. H.; C. H. Rittenhouse; and R. C. Heald. Use of Resource Material and Decision Processes Associated with Educational Innovation: A Literature Survey. Berkeley, California: Far West Laboratory for Research and Development, December,1968.

Cuadra, Carlos A., (Editor). Annual Review of Information Science and Technology. (Vols. 1-6). Available through American

Society for Information Science, Washington, D.C., 1966-1971.

Elias, Arthur W., (Editor). Third Conference on Technical Information Center Administration. New York: Spartan Books, 1967.

Farr, Richard S. Knowledge Linkers and the Flow of Educational Information. Stanford, California: ERIC Clearinghouse on Educational Media and Technology, 1969.

Goldhammer, Keith, and Stanley Elam. Dissemination and Implementation. (Third Annual Phi Delta Kappa Symposium on Educational Research). Bloomington, Indiana: Phi Delta Kappa, 1962.

Good, Carter V. Introduction to Educational Research. New York: Appleton-Century-Crofts, 1963.

Havelock, Ronald G.; Huber, Janet; and Zimmerman, Shaindel. Major Works on Change in Education: An Annotated Bibliography and Subject Index. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, University of Michigan, March, 1969.

Havelock, Ronald G. Bibliography on Knowledge Utilization and Dissemination. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, 1968.

Havelock, Ronald G. Planning for Innovation through Dissemination and Utilization of Knowledge. (Final Report Contract No. EC-3-7-077028). Ann Arbor, Michigan: The University of Michigan, 1969.

Herner, Saul. "Methods of Organizing Information for Storage and Searching." American Documentation, 13:3-14, January 1962.

Jung, Charles C. An Orientation and Strategy for Working on Problems of Change in School Systems. Washington, D.C.: National Training Laboratories, 1967.

Jung, Charles C. The Trainer Change-Agent Role Within a School System. Washington, D.C.: National Training Laboratories, 1967.

King, Donald W., and Bryant, Edward C. The Evaluation of Information Services and Products. Washington, D.C.: Information Resources Press, 1971.

Lancaster, F. Wilfred. Information Retrieval Systems: Characteristics, Testing and Evaluation. New York: John Wiley and Sons, 1968.

Lancaster, F. W. "The Cost-Effectiveness Analysis of Information Retrieval and Dissemination Systems." Journal of the American Society for Information Science, 22:12-27, January-February 1971.

Lewis, Chester M., (Editor). Special Libraries: How to Plan and Equip Them. New York: Special Libraries Association, 1963.

Maguire, Louis M., et al. An Annotated Bibliography on Administering for Change. Philadelphia, Pennsylvania: Research for Better Schools, Inc., 1971.

Meadow, Charles P. Man-Machine Communication. New York: Wiley Interscience, 1970.

Miles, Matthew B. Innovation in Education. New York: Teachers College Press, Teachers College, Columbia University, 1964.

Miller, Richard I., (Editor). Perspectives on Educational Change. New York: Appleton-Century-Crofts, 1967.

Smith, Stuart C. A Directory of Organizations and Personnel in Educational Administration. Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, September 1969.

Strable, Edward G., (Editor). Special Libraries: A Guide for Management. New York: Special Libraries Association, 1966.

Renetzky, Alvin, and Greene, Jon S. (Editors). Standard Education Almanac, 1971. Los Angeles: Academic Media, 1971.

Renetzky, Alvin, et al., (Editors). Annual Register of Grant Support, 1970. Los Angeles: Academic Media, 1970.

Appendix C*

BASIC READING LIST

Havelock, Ronald G. The Change Agent's Guide to Innovation in Education. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

Bennis, W. G.; Benne, K. D.; and Chin, R., eds. The Planning of Change. 2d ed. New York: Holt, Rinehart and Winston, 1969.

Havelock, Ronald G. "Dissemination and Translation Roles." Paper available as reprint from author, or from sources identified in The Change Agent's Guide to Innovation in Education. (above).

Havelock, Ronald G. (in collaboration with Alan Guskin) and others. Planning for Innovation. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, 1969.

---

*The following titles are taken from a Basic Reading List in Havelock, Ronald G., and Havelock, Mary C. Training for Change Agents. A Guide to the Design of Training Programs in Education and Other Fields. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, 1973. p. 184.

Lippitt, R.; Watson, J.; and Westley, B. The Dynamics of Planned Change. New York: Harcourt, Brace and Company, 1958.

Miles, Matthew B. Innovation in Education. New York: Bureau of Publications, Teachers College, Columbia University, 1964.

Rogers, Everett M., and Svenning, Lynne. Managing Change. San Mateo, California: Operation PEP, 1969.

Havelock, Ronald G., and Havelock, Mary C. Training for Change Agents. A Guide to the Design of Training Programs in Education and Other Fields. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, 1973.

Rogers, Everett M., and Shoemaker, F. Floyd. The Communication of Innovations. 2d ed. New York: The Free Press, 1971.

Eidell, T. L., and Kitchel, J. M., editors. Knowledge Production and Utilization in Educational Administration. Columbus, Ohio, and Eugene, Oregon: University Council for Educational Administration; and Center for the Advanced Study of Educational Administration, University of Oregon, 1968.

BIBLIOGRAPHY

Many of the items listed in this bibliography are indexed in ERIC's monthly catalogs Resources in Education (RIE) and Current Index to Journals in Education (CIJE). Reports in RIE are indicated by an "ED" number; journal articles in CIJE are indicated by an "EJ" number.

Copies of most ERIC reports, but not journal articles, can be ordered from the ERIC Document Reproduction Service. If a report is available from EDRS, its order number and prices are given. When ordering, please specify the "ED" number. Unless otherwise noted, reports are available in both microfiche (MF) and paper copy (HC). Please include check or money order payable to EDRS.

Postage must be added to the cost of all orders. Rates are as follows. Microfiche: $0.20 for up to 60 fiche and $0.09 for each additional 60. Paper copy: $0.20 for first 60 pages and $0.09 for each additional 60.

Address requests to EDRS, P.O. Box 190, Arlington, Virginia 22210.

1. Adelman, Howard S. Facilitating Educational Change and Preparing Change Agents. Riverside: University of California, 1973. 122 pages. ED 090 207 MF $0.76 HC $5.70.

2. Banathy, Bela H., and others. Design, Development and Validation of a Transportable Instructional System for the Training of Educational Diffusion/Evaluation Personnel. Final Report. Berkeley, California: Far West Laboratory for Educational Research and Development, 1971. 127 pages. ED 055 610 MF $0.76 HC $6.97.

3. Banathy, Bela H., and others. The Educational Information Consultant: Skills in Disseminating Educational Information, A Report on the Development and Operational Validation of Three Alternative Forms of a Transportable Instructional System. Final Report. Berkeley, California: Far West Laboratory for Educational Research and Development, 1972. 117 pages. ED 071 689 MF $0.76 HC $5.70.

4. Beckerman, Marvin M. "Educational Change Agents: An 'Inside-Outside' Team." Educational Leadership, 30, 6 (March 1973), pp. 530-532. EJ 073 669.

5. Berman, Paul, and McLaughlin, Milbrey Wallin. Federal Programs Supporting Educational Change, Volume I: A Model of Educational Change, Santa Monica, California: The Rand Corporation, 1974. 34 pages. ED 099 957 MF $0.76 HC $1.95.

6. Berman, Paul, and McLaughlin, Milbrey Wallin. Federal Programs Supporting Educational Change, Volume IV: The Findings in Review. Santa Monica, California: The Rand Corporation, 1975. 59 pages. ED 108 330 MF $0.76 HC $3.32.

7. Bhola, Harbans S., and others. "Training the Change Makers in Education." Audiovisual Instruction, 18, 1 (January 1973), pp. 22-24. EJ 071 237.

8. Boone, E. J., and others. Programming in the Cooperative Extension Service: A Conceptual Schema. Raleigh: Department of Adult Education, North Carolina State University, 1971. 23 pages. ED 057 339 MF $0.76 HC $1.58.

9. Brick, Michael, and Bushko, Andrew A., editors. The Management of Change. New York: Community College Center, Columbia University, 1973. 62 pages. ED 079 861 MF $0.76 HC $3.32.

10. Brown, Mary V., and Temkin, Sanford, editors. What Do Research Findings Say about Getting Innovations into Schools: A Symposium (October 8-9, 1973). Philadelphia: Research for Better Schools, Inc., 1974. 210 pages. ED 103 987 MF $0.76 HC $10.78.

11. Bryant, Bunyan, and others. Resources for School Change III: A Manual on Issues and Strategies in Resource Utilization. Ann Arbor: School of Education, University of Michigan, 1972. 115 pages. ED 069 046 MF $0.76 HC $5.70.

12. Byrnes, Francis C. "Credibility and Competence: Key Characteristics of Development Communicators." Paper presented at World Congress for Rural Sociology, Baton Rouge, Louisiana, August 1972. 9 pages. ED 072 339 MF $0.76 HC $1.58.

13. Caskey, Owen L. "The Conditions of Institutional Change." Presentation to the University of New Mexico College of Education faculty-student retreat, March 1974. 6 pages. ED 098 479 MF $0.76 HC $1.58.

14. Chesler, Mark, and others. The Educational Change Team: An Effort to Develop a National Facility to Generate and Implement Information and Resources Relevant to Secondary School Crisis and Change. Final Report. Ann Arbor: School of Education, University of Michigan, 1972. 112 pages. ED 087 644 MF $0.76 HC $5.70.

15. Chesler, Mark, and others. Resources for School Change I: A Manual on Issues and Programs in Training Educational Change. Ann Arbor: School of Education, University of Michigan, 1972. 109 pages. ED 069 044 MF $0.76 HC $5.70.

16. Clark, Carolyn. "Implementing Change in School Districts: A Description of the Role, Training, and Field Impact of the RBS Field Consultant." Paper presented at American Educational Research Association annual meeting, Chicago, April 1974. 27 pages. ED 089 428 MF $0.76 HC $1.95.

17. Clark, David L., and Guba, Egon G. "The Configurational Perspective: A Challenge to the Systems View of Educational Knowledge Production and Utilization." Paper presented at the annual meeting of the Council for Educational Development and Research, Washington, D.C., 1974. 77 pages. ED 098 193 MF $0.76 HC $3.32.

18. Cole, Henry P., and Harty, Harold. "Generalized Roles of Students and Community in Planned Educational Change Efforts." High School Journal, 57, 3 (December 1973), pp. 93-100. EJ 090 479.

19. Cooke, Robert A., and Zaltman, Gerald. "Change Agents and Social System Change." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. 39 pages. ED 061 641 MF $0.76 HC $1.95.

20. Crandall, David P. "The Relationship between Innovativeness and Selected Elements of Group Structure." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Amherst: University of Massachusetts, 1972. 52 pages. ED 062 662 MF $0.76 HC $3.32.

21. Cutter, Virginia M. Dissemination Policies, Procedure, and Programs of Nine State Education Agencies. Washington, D.C.: Council of Chief State School Officers, 1974. 155 pages. ED 090 967 MF $0.76 HC $8.24.

22. District of Columbia Public Schools. Reading Research Utilization Project, Interim Report. Washington, D.C.: Research Information Center, 1972. 122 pages. ED 069 281 MF $0.76 HC $5.70.

23. Doyle, Walter. Instructional Consultation: A Strategy for Classroom Intervention. 1974. 29 pages. ED 087 755 MF $0.76 HC $1.95.

24. Duncan, Robert B. "Criteria for Type of Change-Agent in Changing Educational Organizations." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. 28 pages. ED 061 642 MF $0.76 HC $1.95.

25. Eidell, T. L., and Kitchel, J. M., editors. Knowledge Production and Utilization in Educational Administration. Columbus, Ohio; and Eugene, Oregon: University Council for Educational Administration; and Center for the Advanced Study of Educational Administration, University of Oregon, 1968. 93 pages. ED 024 112 MF $0.76 HC $4.43.

26. Eve, Arthur W. Variables of Institutional Change at the Elementary and Secondary School Levels. 1971. 131 pages. ED 083 149 MF $0.76 HC $6.97.

27. Far West Laboratory for Educational Research and Development. A Training Program in Educational Development, Dissemination, and Evaluation (DD&E). A Prospectus. San Francisco: 1974.

28. Gallessich, June. "Organizational Factors Influencing Consultation in Schools." Journal of School Psychology, 11, 1 (March 1973), pp. 57-65. EJ 080 150.

29. Goldman, Samuel, and Moynihan, William. "Strategies for Consultant-Client Interface." Educational Technology, 12, 10 (October 1972), pp. 27-30. EJ 075 631.

30. Goodson, Max R., and Hagstrom, Warren O. Changing Schools: Case Studies of Change-Agent Teams in Three School Systems. A Report from the Project on Models for Effecting Planned Educational Change. Madison: Research and Development Center for Cognitive Learning, University of Wisconsin, 1971. 59 pages. ED 058 664 MF $0.76 HC $3.32.

31. Greenwood, Peter W.; Mann, Dale; and McLaughlin, Milbrey Wallin. Federal Programs Supporting Educational Change, Volume III: The Process of Change. Santa Monica, California: The Rand Corporation, 1975. 93 pages. ED 108 325 MF $0.76 HC $4.43.

32. Hall, Clyde W. "How to Implement Change. A Position Paper." Paper presented at National Workshop on Comprehensive Vocational Education Development and Utilization, Washington, D.C., June 1971. 22 pages. ED 054 054 MF $0.76 HC $1.58.

33. Hall, Gene E. "Implementation of CBTE--Viewed as a Development Process." Paper presented at National Conference on Competency Assessment, Research, and Evaluation, University of Houston, March 1974. Austin: Research and Development Center for Teacher Education, University of Texas. 26 pages. ED 088 863 MF $0.76 HC $1.95.

34. Hall, Gene E., and others. A Developmental Conceptualization of the Adoption Process within Educational Institutions. Austin: Research and Development Center for Teacher Education, University of Texas, 1973. 44 pages. ED 095 126 MF $0.76 HC $1.95.

35. Havelock, Ronald G. Training for Change Agents. A Guide to the Design of Training Programs in Education and Other Fields. Ann Arbor: Institute for Social Research, University of Michigan, 1971. 219 pages. ED 056 259 MF $0.76 HC $10.78.

36. Havelock, Ronald G. "Models of the Innovation Process in U.S. School Districts." Paper presented at American Educational Research Association annual meeting, Chicago, April 1974. 19 pages. ED 094 479 MF $0.76 HC $1.58.

37. Heathers, Glen. "The Pittsburgh-Based Project to Train Educational R & D Personnel. Research Training through a Multiple System Consortium, Paper Number 1." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Pittsburgh: Learning Research and Development Center, University of Pittsburgh. 15 pages. ED 063 678 MF $0.76 HC $1.58.

38. Hinkmeyer, Michael T., and Langenbach, Michael. "How to Impede Change: The 'Turn Off'." Clearing House, 47, 4 (December 1972), pp. 198-203. EJ 069 205.

39. Holstein, Herbert B., and others. Career Education: A Curriculum Model and Strategies for Implementation. Hamlin, West Virginia: Lincoln County Schools, 1971. 21 pages. ED 059 365 MF $0.76 HC $1.58.

40. House, Ernest R. The Politics of Educational Innovation. Berkeley, California: McCutchan Publishing Corporation, 1974. 312 pages. ED 099 334 Document not available from EDRS.

41. House, Ernest R., and others. "A Test of the Research and Development Model of Change." Educational Administration Quarterly, 8, 1 (Winter 1972), pp. 1-14. EJ 050 064.

42. Huberman, A. M. Understanding Change in Education: An Introduction. Experiments and Innovations in Education Number 4. Geneva, Switzerland; and Paris, France: International Bureau of Education; and United Nations Educational, Scientific, and Cultural Organization, 1973. 105 pages. ED 082 330 MF $0.76 HC not available from EDRS.

43. Ignatovich, Frederick R. "Management of Organizational Conflict Resulting from Adoption of New Planning--Evaluation Strategies." Paper presented at American Educational Research Association annual meeting, New Orleans, February-March 1973. 35 pages. ED 085 943 MF $0.76 HC $1.95

44. Jalihal, Krishna A., and Dotson, Robert S. Some Implications of Farm Practice Diffusion--Adoption Research for Extension Program Development. A Research Summary of a Graduate Study. Knoxville: Agricultural Extension Service, University of Tennessee, 1973. 36 pages. ED 085 470 MF $0.76 HC $1.95.

45. Katagiri, George. Oregon's Pilot State Dissemination Program. Final Report. Salem: Oregon State Department of Education, 1973. 65 pages. ED 081 451 MF $0.76 HC $3.32.

46. Kerins, C. Thomas, and others. "Demonstration Process Factors Leading to Adoption of Innovation." Paper presented at American Educational Research Association annual meeting, New York, February 1971. 10 pages. ED 047 417 MF $0.76 HC $1.58.

47. Lavin, Richard J. "Establishing Effective Linkages at the Local Education Agency Level." Paper presented at the American Educational Research Association annual meeting, Chicago, April 1972. 16 pages. ED 094 729 MF $0.76 HC $1.58.

48. Leary, Paul A. "The Change Agent." Journal of Rehabilitation, 38, 3 (January/February 1972), pp. 30-33. EJ 056 827.

49. Leithwood, K. A., and others. "A Revised Model of School Change." Paper presented at the American Educational Research Association annual meeting, Chicago, April 1974. 40 pages. ED 090 668 MF $0.76 HC $1.95.

50. Leslie (C. E.) and Associates. Comprehensive Vocational Education Personnel Development and Utilization. Glen Head, New York: 1972. 301 pages. ED 070 896 MF $0.76 HC $15.86.

51. Lindquist, Jack. "The Role of the External Linkage Agent in College and University Action Research." Paper presented at the American Educational Research Association annual meeting, Chicago, April 1974. 15 pages. ED 090 871 MF $0.76 HC $1.58.

52. Lindsay, Kenneth P. Research Information for the Educator to Meet the Educational Needs of Utah's Children: Technical Assistance Information Service, Interim Report. Salt Lake City: Utah State Board of Education, 1972. 231 pages. ED 069 327 MF $0.76 HC $12.05.

53. Loadman, William E., and Mahan, James M. "The External Consultant and Curriculum Change Strategies." Theory into Practice, 11, 5 (December 1972), pp. 329-339. EJ 069 696.

54. Maguire, Louis M. Observations and Analysis of the Literature on Change. Philadelphia: Research for Better Schools, Inc., 1970. 46 pages. ED 043 966 MF $0.76 HC $1.95.

55. Maguire, Louis M., and others. An Annotated Bibliography on Administering for Change. Philadelphia: Research for Better Schools, 1971. 339 pages. ED 056 246 MF $0.76 HC $17.13.

56. Mick, Colin, and others. Development of Training Resources for Educational Extension Services Personnel. Volume 1, Final Report. Stanford; and Santa Monica, California: Institute for Communication Research, Stanford University; and System Development Corporation, 1973. 237 pages. ED 077 534 MF $0.76 HC $12.05.

57. Mick, Colin, and others. Development of Training Resources for Educational Extension Services Personnel. Volume 2, Trainers' Book. Stanford; and Santa Monica, California: Institute for Communication Research, Stanford University; and System Development Corporation, 1973. 417 pages. ED 077 535 MF $0.76 HC $20.94.

58. Mick, Colin, and others. Development of Training Resources for Educational Extension Services Personnel. Volume 3, Trainees' Book. Stanford; and Santa Monica, California: Institute for Communication Research, Stanford University; and System Development Corporation, 1973. 364 pages. ED 077 536 MF $0.76 HC $18.40.

59. Miller, Donald F. Oregon Small Schools Program: A Title III Project. Independent Evaluation Report, 1972. Salem, Oregon: Educational Coordinates Northwest, 1972. 221 pages. ED 066 271 MF $0.76 HC $10.78.

60. Mojkowski, Charles, and Mellor, Kenneth. "Role Definition and Effectiveness of Part-Time Information Consultants in Rhode Island." Paper presented at American Educational Research Association annual meeting, Chicago, April 1974. Providence: Bureau of Technical Assistance, Rhode Island State Department of Education. 19 pages. ED 089 689 MF $0.76 HC $1.58.

61. National Institute of Mental Health (DHEW). Planning for Creative Change in Mental Health Services: A Distillation of Principles on Research Utilization. Volumes 1 and 2. Bethesda, Maryland: 1972. 555 pages. ED 068 850 MF $0.92 HC $28.56.

62. Nicely, Robert R., Jr. "The Design of Programs to Train Personnel to Develop and Conduct Programs of Local Change. Research Training through a Multiple System Consortium, Paper Number 4." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Pittsburgh: Learning Research and

Development Center, University of Pittsburgh. 22 pages. ED 063 681 MF $0.76 HC $1.58.

63. Northwest Regional Educational Laboratory. Preparing Organizational Development Specialists (PODS). Portland, Oregon: n.d.

64. Orlosky, Donald E., and Smith, B. Othanel. A Study of Educational Change. 1971. 139 pages. ED 061 166 MF $0.76 HC $6.97.

65. Ovsiew, Leon; Temkin, Sanford; and Maguire, Louis M. Change Capability in the School District. Philadelphia: Research for Better Schools, Inc., 1974. 117 pages. ED 108 307 MF $0.76 HC $5.70.

66. Pace, R. Wayne. "Organizational Associates: So You Want to Be a Consultant?" Paper presented at Central States Speech Association annual meeting, Minneapolis, April 1973. 9 pages. ED 077 045 MF $0.76 HC $1.58.

67. Pearson, Douglas L. Planning for Education: People and Processes. School Planning Guide Series--1R. Raleigh: Division of School Planning, North Carolina State Department of Public Instruction, 1973. 54 pages. ED 082 353 MF $0.76 HC $3.32.

68. Rasmussen, Roger. "The Product as Change Agent: Advantages and Limitations." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Dayton, Ohio: Institute for Development of Educational Activities. 16 pages. ED 063 550 MF $0.76 HC $1.58.

69. Raulerson, J. D. "Innovation in Education: Needed--A New Professional." Educational Technology, 12, 8 (August 1972), pp. 40-41. EJ 076 097.

70. Rhode Island State Department of Education. The Role of the Program Development and Diffusion Consultant as an Education Extension Agent. Providence: Division of Academic Services, 1973. 10 pages. ED 082 365 MF $0.76 HC $1.58.

71. Robinson, Erika L. An Analysis of the Impact of the Research Utilization Project on Principals' Attitudes and on the Use of Information Services by Teachers and Other Field Personnel in 16 Target Elementary Schools of the District of Columbia. Washington, D.C.: Department of Research and Evaluation, District of Columbia Public Schools, 1973. 63 pages. ED 086 177 MF $0.76 HC $3.32.

72. Robinson, Ronald, and Hall, Douglas T. "Intervention Theory and Practice in School Systems." Paper presented at American Educational Research Association annual meeting, New Orleans, February-March 1973. 18 pages. ED 075 932 MF $0.76 HC $1.58.

73. Rogers, Everett M. Diffusion of Innovations. New York: The Free Press of Glencoe, Inc., 1962.

74. Rogers, Everett M., and others. "National Seminar on the Diffusion of New Instructional Materials and Practices. Perspectives on Diffusion." Papers presented at National Seminar on the Diffusion of New Instructional Materials and Practices, Racine, Wisconsin, June 1973. Boulder, Colorado: Social Science Education Consortium.

56 pages. ED 083 111 MF $0.76 HC $3.32.

75. Roling, Niels. "The Change Agent as a Communicator" and "Communication: A Key to Success in Extension." Papers presented at International Course on Rural Extension, Wageningen, Holland, July 1970 and 1971. 27 pages. ED 061 499 MF $0.76 HC $1.95.

76. Rosenau, Fred S. Tactics for the Educational Change Agent. A Preliminary Analysis. San Francisco: Far West Laboratory for Educational Research and Development, [1974]. 95 pages. ED 096 258 MF $0.76 HC $4.43.

77. Sanders, John R., and Borich, Gary D. "The Effect of Educational Consultant Teams on the Acceptance of Innovations." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Columbus: Evaluation Center, Ohio State University. 23 pages. ED 065 454 MF $0.76 HC $1.58.

78. Sarthory, Joseph A. Educational Leadership as Organizational Renewal. Topeka: Kansas State Department of Education, 1971. 11 pages. ED 056 000 MF $0.76 HC $1.58.

79. Schmuck, Richard A., and Runkel, Philip J. "Integrating Organizational Specialists into School Districts." Paper presented at National Training Laboratories Invitational Conference on New Technology in Organizational Development, New York, October 1971. 47 pages. ED 061 617 MF $0.76 HC $1.95.

80. Sieber, Sam D., and others. The Use of Educational Knowledge: Evaluation of the Pilot State Dissemination Program. Volume I: Goals, Operations and Training. Final Report. New York: Bureau of Applied Social Research, Columbia University, 1972. 592 pages. ED 065 739 MF $1.08 HC $29.83.

81. Sieber, Sam D., and others. The Use of Educational Knowledge: Evaluation of the Pilot State Dissemination Program. Volume II: Part VIII, Case Studies of Field Agents in Action. Final Report. New York: Bureau of Applied Social Research, Columbia University, 1972. 542 pages. ED 065 740 MF $0.92 HC $27.29.

82. Simonds, J. Todd, and St. Lawrence, Theodora. "Methodological and Theoretical Bases for Designing Local Educational Change Programs. Research Training through a Multiple System Consortium, Paper Number 2." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. Pittsburgh: Learning Research and Development Center, University of Pittsburgh. 18 pages. ED 063 679 MF $0.76 HC $1.58.

83. Simonds, Richard Shelton. "Toward a Paradigm of Educational Change: The Role of Management Information Systems." Doctoral dissertation, University of Southern California, 1973. 290 pages. ED 077 191 MF $0.76 HC $14.59.

84. Smith, G. A. "Agricultural Extension--Programming the Work." Paper presented at the SARCUS Agricultural Extension workshop, Swaziland, July 1971. 9 pages. ED 072 354 MF $0.76 HC $1.58.

85. Smith, George. "Problems in the Organization and Administration of Career Education Programs. Bulletin, Volume 16, Number 1." Presentation at National Conference on Career Education for Professors of Educational Administration, Columbus, 1972. Eugene: Oregon School Study Council. 27 pages. ED 072 291 MF $0.76 HC $1.95.

86. Scmmerville, Joseph C. "Leadership That 'Rocks the Boat', A Boat that Needs Rocking." Educational Leadership, 29, 1 (October 1971), pp. 45-49. EJ 043 487.

87. Stout, Jerry B. "The Intermediate Unit as a Change Agent." Paper presented at American Association of School Administrators annual convention, San Francisco, March 1973. 6 pages. ED 078 498 MF $0.76 HC $1.58.

88. Tennessee Occupational Research and Development Coordinating Unit. Region II National Dissemination Conference (Knoxville, Tennessee, October 10-11, 1972). Knoxville: 1972. 30 pages. ED 075 577 MF $0.76 HC $1.95.

89. Thomas, George B., and Jones, James M. Innovation Teams: Operating Principles. Newton, Massachusetts: Pilot Communities Program, Education Development Center, 1971. 128 pages. ED 091 350 MF $0.76 HC $6.97.

90. Thomas, Jack E. "Why Revive the R&D Model of Innovation?" Educational Administration Quarterly, 11, 2 (Spring 1975), pp. 104-108.

91. University of Michigan. Education Change Agents, Modules & Materials: Volumes 1 and 2. Ann Arbor: School of Education, 1973. 526 pages. ED 096 732 MF $0.92 HC $27.29.

92. University of Missouri. Module Specification Phase. Special Project: Prototype Training Program for the Preparation of Curriculum Consultants for Exceptional Children. Interim Report. Columbia: Special Education Curriculum Training Center, 1973. 180 pages. ED 089 524 MF $0.76 HC $9.51.

93. Wall, James E. Review and Synthesis of Strategies for Effecting Change in Vocational and Technical Education. Columbus: Center for Vocational and Technical Education, Ohio State University, 1972. 64 pages. ED 062 512 MF $0.76 HC $3.32.

94. Ward, Joe H., Jr., and others. The Educational Catalyst: An Imperative for Today. Bloomington, Indiana: Phi Delta Kappa, 1971. 53 pages. ED 061 991 MF $0.76 HC not available from EDRS.

95. Wiegman, Louise Howard. "The Educational Planner as a Change Agent." Educational Planning, 2, 3 (December 1972), pp. 61-64. EJ 070 770.

96. Wiener, William K. "Interpersonal Compatibilities of Innovative and Non-Innovative School Principals and Curriculum Coordinators." Paper presented at American Educational Research Association annual meeting, Chicago, April 1972. 23 pages. ED 061 606 MF $0.76 HC $1.58.

97. Wolf, W. C., Jr. "The Massachusetts Diffusion Assistance Project Response Survey." Mimeographed. n.d.

98. Wolf, W. C., Jr., and Fiorino, A. John. A Study of Educational Knowledge Diffusion and Utilization. Amherst, and Philadelphia: University of Massachusetts, and Temple University, 1972. 125 pages. ED 061 772 MF $0.76 HC $5.70.

99. Wood, Merle W. "So You're Going to Be a Consultant." American Vocational Journal, 47, 5 (May 1972), pp. 38-41. EJ 058 063.

100. Wyant, Spencer. Organizational Development from the Inside: A Progress Report on the First Cadre of Organizational Specialists. Eugene: Center for Advanced Study of Educational Administration, University of Oregon, 1972. 22 pages. ED 061 596 MF $0.76 HC $1.58.